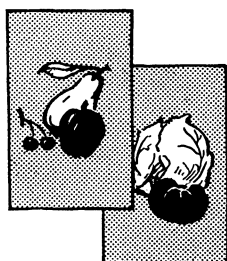


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CONTAINERS *for* *Fruits and* *Vegetables*



FARMERS' BULLETIN
NO. 1821

U. S. DEPARTMENT
OF AGRICULTURE

PERHAPS the most natural question concerning containers for fruits and vegetables and one often arising in one form or another is, What container is standard for a particular product, or in a particular section? For few products or sections is there a definite, final answer to that question.

Federal standards are in force for barrels and for the several types of baskets and hampers, but most fruits and vegetables are packed in containers for which no such standards have been established—in crates, boxes, cartons, drums, and sacks.

These containers are used in such a wide variety of deceptive sizes and shapes that they impose an unnecessary burden on the distributing trade—and hence on the consumers and growers.

It is generally believed that the principle of standardization could be applied to these containers to the immediate benefit of all parties concerned.

Without attempting to recommend one type of container over another, this bulletin sets forth under each commodity the containers most commonly used in the important shipping sections.

This bulletin supersedes Farmers' Bulletin No. 1434, Standard Baskets for Fruits and Vegetables, and Farmers' Bulletin No. 1579, Containers Used in Shipping Fruits and Vegetables.

CONTAINERS FOR FRUITS AND VEGETABLES

By L. C. CAREY, *marketing specialist, Bureau of Agricultural Economics*

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INTRODUCTION

MORE than a million carloads of fruits and vegetables are shipped annually in this country. They are shipped by railroad, by steamboat, and by motortruck. As the greater part of this produce, probably 85 to 90 percent, is packed in some kind of container, more than a billion packages are required, representing an investment of several million dollars. Thus the containers used in shipping fruits and vegetables are of vital importance in the satisfactory marketing and distribution of these commodities.

TYPES OR CLASSES OF CONTAINERS

The containers used for fruits and vegetables may be divided into four principal classes—baskets, crates and boxes, barrels, and sacks. Containers of a fifth class, cylindrical drums, have a limited use.

There are five types of baskets—till baskets, hampers, round stave baskets, splint or market baskets, and Climax or grape baskets.

Crates and boxes are grouped together because in the trade consistent distinction between them has not been preserved. Whether constructed of rotary-cut or sawn material, the ends, sides, tops, and bottoms may be solid, paneled, or slatted, in various combinations of single pieces and cleated units. Typical boxes are usually assembled with nails, but many crates are now bound together by means of

encircling wires stapled to the units and closed with interlocking wire loops. Cartons, which come in this group of rectilinear containers, are made of either corrugated or solid fiberboard.

Barrel construction is usually classified as stave or veneer; some have wooden heads in both ends and others are closed at the top with cloth or burlap.

The cylindrical drum, at one time extensively used for certain varieties of grapes, has come into use for certain other products, such as brussels sprouts, and in a slatted form for citrus fruits, potatoes, and similar products.

Sacks are generally made of jute, but many are now made of cotton sheeting and of paper. For certain products, like onions, open-mesh bags are now used almost exclusively, and this style is being used increasingly for such products as citrus fruits, cabbage, green corn, and peas.

CONTAINERS STANDARDIZED BY LAW

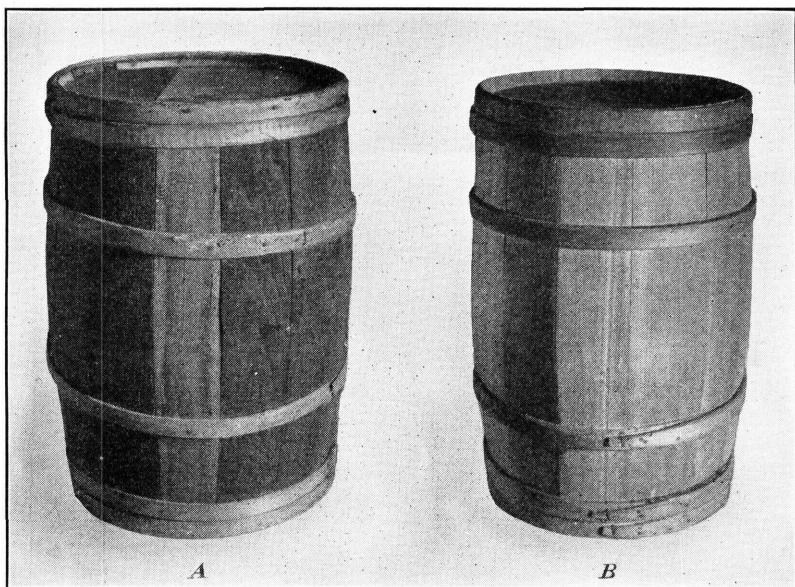
STANDARD BARREL ACT, 1915

A question that arises often in one form or another concerning containers for fruits and vegetables is, What container is standard for a particular product or in a particular section? Strangely enough, of the four great classes of containers, standards have been established by Federal law for only two—baskets and barrels.

The first to be so established was the standard apple barrel in 1912. In addition to fixing the size and dimensions of the apple barrel, the Standard Apple Barrel Act set up certain standardized grades for apples. The grades for apples have been superseded by further developed grades so that with the passage of the Standard Barrel Act in 1915 the Apple Barrel Act, while still on the statute books, has become obsolete.

The Standard Barrel Act established two standard barrels (1) the standard fruit and vegetable barrel having the same dimensions and capacity as the standard apple barrel and (2) the standard cranberry barrel, of entirely different capacity and dimensions. It also provided three standard subdivisions of both, the three-fourths, one-half, and one-third barrel. None of these barrels and no subdivision bears a basic relationship to the standard bushel. The cranberry barrel was designed to hold 100 pounds of cranberries and has a capacity of 5,826 cubic inches or slightly less than 87 quarts. The fruit and vegetable barrel (fig. 1) both in capacity and dimensions is substantially the same as the commonly used flour barrel of that day. It has a capacity of 7,056 cubic inches and although generally considered to be the equivalent of 3 bushels, it actually contains 604.7 cubic inches, or 9 quarts, more than 3 bushels, and is sometimes referred to as a 13-peck barrel. Except in the case of the one-third cranberry barrel, which is no longer used, no appreciable use has ever been made of the small-sized barrels.

The act does not apply to barrels used for products packed and sold exclusively by weight or numerical count, an example of which is the 4-bushel barrel sometimes used for bunched vegetables in the South.



BAE 33860

FIGURE 1.—A, United States standard fruit and vegetable barrel; B, the cranberry barrel.

STANDARD CONTAINER ACT, 1916

Two Federal laws govern the manufacture, sale, and shipment of hampers and baskets for fruits and vegetables. The Standard Container Act of 1916, enacted under the commerce clause of the Constitution, established three standard sizes—2-, 4-, and 12-quart—and prescribed the dimensions of Climax baskets for grapes and other fruits and vegetables. As amended in 1934, the act also now provides for and prescribes the dimensions of a 1-pound Climax basket for mushrooms and restricts its use to that product (fig. 2).

This act also fixed the standard sizes of berry baskets and other containers for small fruits, berries, and vegetables, requiring them to be of $\frac{1}{2}$ -pint, 1-pint, or 1-quart capacity, dry measure, or a multiple of the dry 1 quart. Until superseded by later legislation, this section of the act applied to baskets of all types, including hampers, but at present its application is restricted chiefly to such containers as small till baskets that are of the same general form and construction as berry baskets (figs. 3 and 4).

No dimensions are prescribed. Consequently, berry baskets and till baskets of various shapes and construction are in more or less common use in different parts of the country (fig. 5). Till baskets are either square or oblong and, when made of wood, are bound at the top with either wooden or metal bands. The manufacture and use of the square type, many of them made of paper, is confined mainly to the Pacific coast.



BAE 5276 AND 2722

FIGURE 2.—Upper, United States standard 1-pound mushroom basket, and 2-, 4-, and 12-quart Climax or grape baskets; lower, some of the numerous sizes and varying shapes of Climax baskets in general use before 1917.

STANDARD CONTAINER ACT, 1928

The Standard Container Act of 1928 fixed the standard sizes of hampers, round stave baskets, and splint or market baskets. This law differs from the Standard Container Act of 1916 in several notable respects. Like the Standard Barrel Act, it was enacted under the weights and measures clause of the Constitution and hence applies in intrastate as well as interstate transactions. It prohibits the manufacture, sale, or shipment, of hampers, round stave baskets, and splint baskets, filled or unfilled, the dimension specifications for which have not been submitted to and approved by the Secretary of Agriculture, and it restricts such approval to containers that are of proper standard size and not deceptive in appearance. Under these provisions a marked degree of uniformity in the size, form, and shape of these containers has been brought about.

Nine standard sizes of hampers and round stave baskets are provided: $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, and 2 bushels. Not all of these are commercially important. For instance, the 2-bushel hamper has never been used for fruits and vegetables. However, in retail stores, farmers' markets, and roadside stands the three smaller sizes are common

in the New England and Middle Atlantic States. The $\frac{5}{8}$ -bushel hamper is preeminently a cannery package particularly for tomatoes, but serves also as a general marketing container in Philadelphia and surrounding territory. The use of the $1\frac{1}{4}$ -bushel hamper has been confined to the shipment of green peas and beans from North Carolina, and the use of the $\frac{3}{4}$ -bushel hamper to similar products originating in the Southeast and Gulf States. The two most important hampers for shipping purposes are the 1- and $1\frac{1}{2}$ -bushel sizes (fig. 6).

Of the nine standard sizes of round stave baskets only four are commercially important—the $\frac{1}{8}$ - and $\frac{1}{4}$ -bushel sizes, used chiefly in roadside markets, and the $\frac{1}{2}$ - and 1-bushel sizes, used for shipping (fig. 7). The origin of the term "round stave" is obscure, but it seems

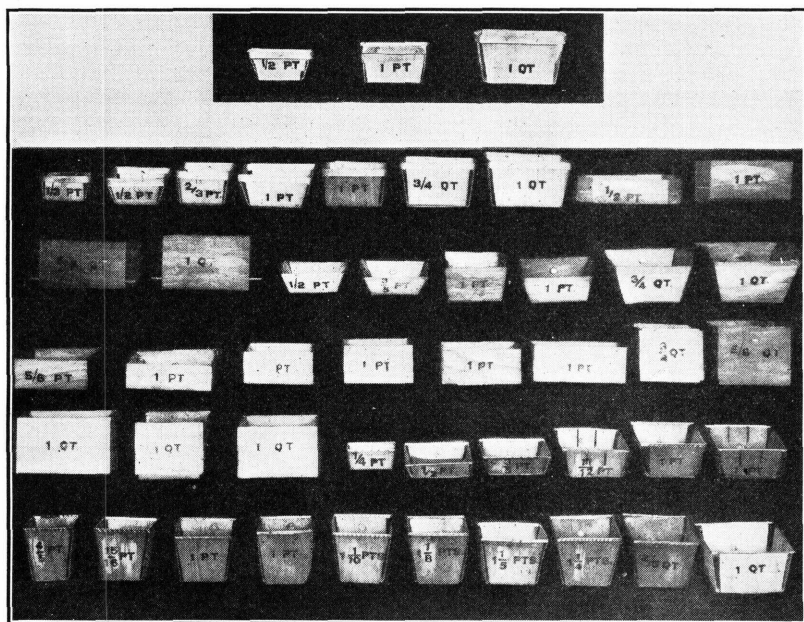


FIGURE 3.—Upper, United States standard ½-pint, 1-pint, and 1-quart berry baskets (American); lower, the Standard Container Act of 1916 eliminated many of these odd-sized berry baskets.

fairly certain that it was first used to differentiate this type from the rectilinear woven type of splint or market basket. There are two principal types—those in which the sides and bottom are formed from continuous staves, and those made of short, noncontinuous staves and a separate solid or built-up bottom piece.

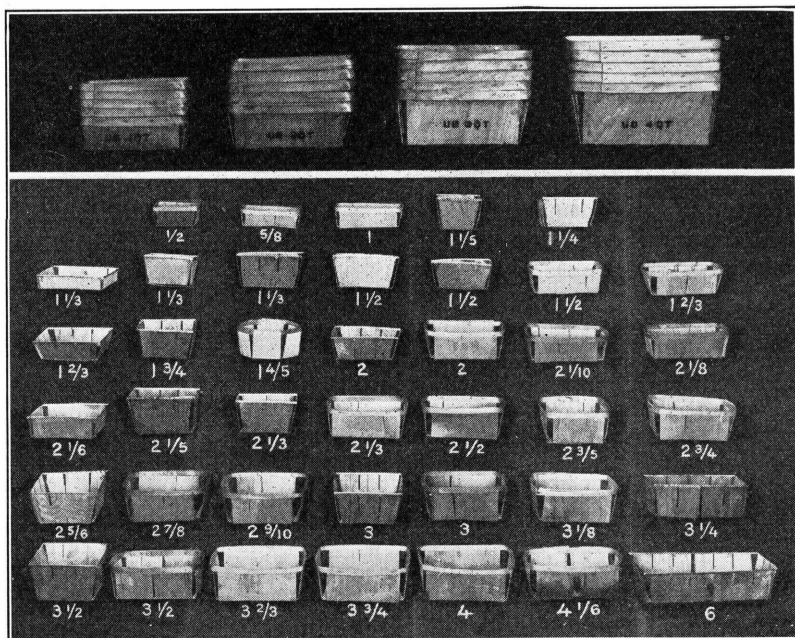
When made with only two outside hoops, one at the top and the other midway between the top and bottom, continuous stave baskets are usually called round bottom baskets, reflecting the curved nature of the bottom.

When a third hoop is placed at or near the bottom, the angle between the sides and bottom is more pronounced and definite, and the sides and bottom are, respectively, relatively straight and flat. Such bas-

kets have been variously called bent bottom, straight side, flat bottom, tub, and other more or less descriptive terms. To simplify matters for administrative purposes, continuous stave baskets are classified as to the number of outside hoops—either two-hoop or three-hoop baskets. In the trade, the latter and all noncontinuous stave baskets, which of necessity are constructed with three, rarely four, outside hoops, are called tub baskets or simply tubs.

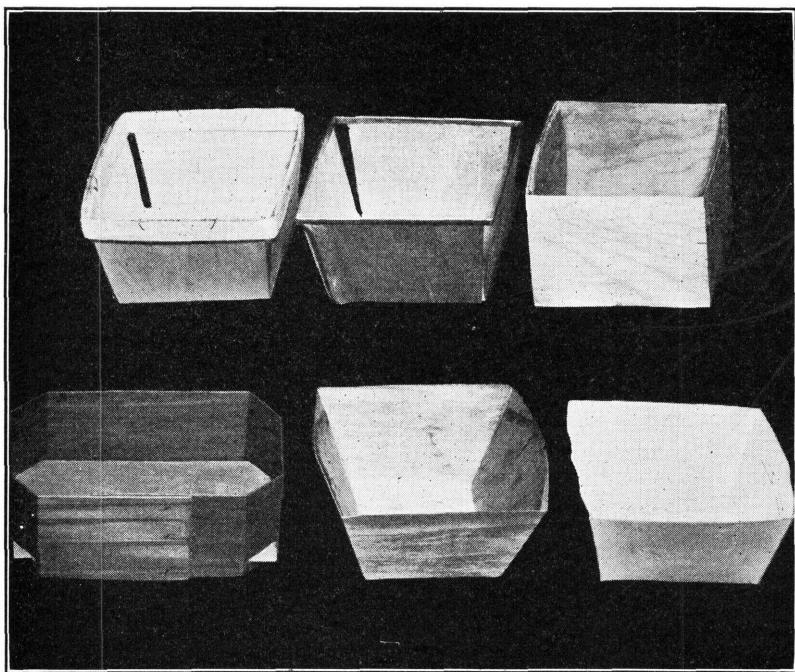
"A vessel of varying capacity made of flexible material, such as twigs, splints, or strips of metal, interwoven and commonly bound at the top" is the dictionary description of a basket. Of all the baskets used for fruits and vegetables the splint or market basket is the one that most nearly conforms to this definition, and the only one directly related to the oldest form of man-made container other than those made from the skins of animals.

Formerly manufactured in tremendous quantities and used over wide areas for fish and meat products as well as for the local marketing of fruits and vegetables, the old original diamond-weave basket with characteristic drop or rigid overhandle has been all but displaced by other types of containers except in a comparatively few and rather isolated areas. In the North Central States, for tomatoes, lettuce, celery, bunched vegetables, and similar products, it has been almost entirely supplanted by the improved square-braid or solid-veneer type



BAE 33109 AND 3287

FIGURE 4.—Upper, United States standard 1-, 2-, 3-, and 4-quart oblong till baskets; lower, before standard sizes were established in 1916, baskets of 30 different and changing sizes were in general use.



BAE 15880

FIGURE 5.—Six types of berry baskets—American, metal-rim, Hallock, Leslie, stitched tray, and paper.

of much greater strength and rigidity, which has proved satisfactory not only for local use but also for motortruck and rail shipments to distant points.

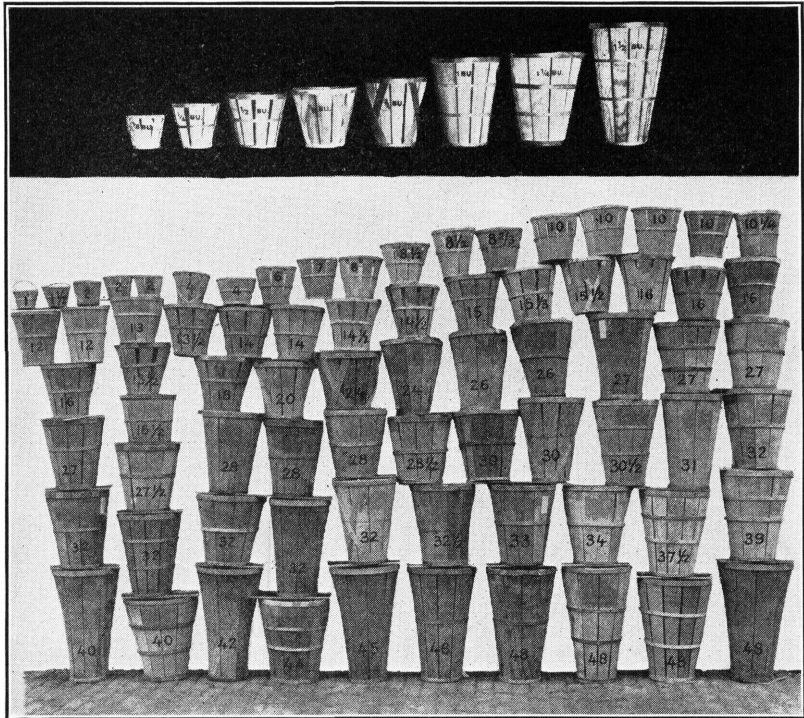
Six standard sizes are provided: 4-, 8-, 12-, 16-, 24-, and 32-quart (fig. 8). More recently paperboard baskets of the same general shape and design have become exceedingly popular in certain sizes and for certain products.

ENFORCEMENT OF THE ACTS

Rules and regulations for carrying out the provisions of the Standard Barrel Act were prepared by the Director of the Bureau of Standards, Department of Commerce, as the act is administered by that Bureau. They are published in Circular of the Bureau of Standards No. 71.

The two Standard Container Acts are administered by the Bureau of Agricultural Economics under rules and regulations promulgated by the Secretary of Agriculture, which are found in Service and Regulatory Announcements Nos. 104 and 116, Bureau of Agricultural Economics.

These three laws have done away with a large number of unnecessary and deceptive sizes of barrels, baskets, and hampers (figs. 1, 2, 3, 4, 6, 7, and 8), and the established sizes of each type are now largely made on standard or recommended specifications. At frequent intervals baskets and hampers are tested at each factory. By this means



BAE 18684

FIGURE 6.—Upper, standard hampers established by the Standard Container Act of 1928 (2-bushel size not shown); lower, these are 75 hampers of varying sizes and shapes that confused buyers and sellers before standardization.

and with the cooperation of the manufacturers the public is assured of uniformly standard baskets and hampers, which it has now come to accept largely as a matter of course.

IMPORTANCE OF STANDARDIZATION

The average citizen has a greater interest in standard containers for marketing fruits and vegetables than he generally realizes. He is at all times a consumer of some commodity, and he may be a grower or shipper, a receiver, distributor, or retailer of other commodities. Or he may be a manufacturer of containers or an official of a transportation agency.

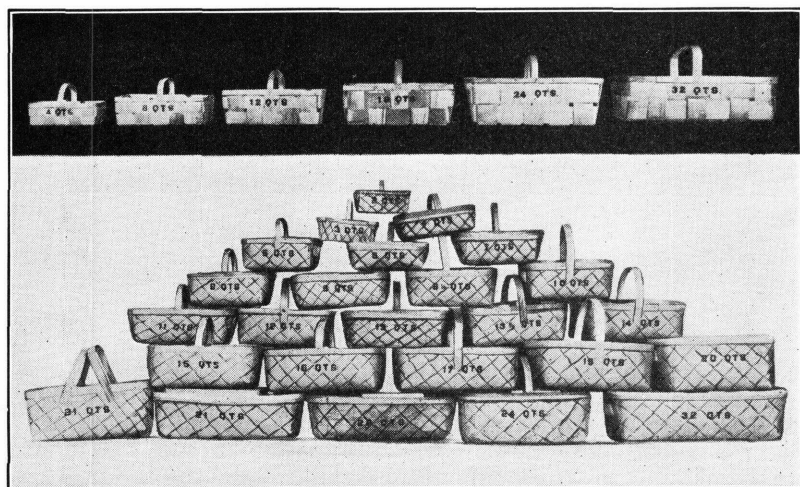
As a consumer he may be directly or indirectly defrauded by the substitution of a container of short-measure capacity at the full-measure price. He pays a part of the increased cost of marketing occasioned by the greater expense of manufacturing a large number of styles and sizes, and a part of the increased cost that is attributable to damage in transit which may be due to weak packages, to improper stowage, or to the difficulty of loading odd-sized containers.

The grower or shipper benefits from any action that lowers the cost of packages, that tends to reduce damage in transit, and that provides



BAE 18678

FIGURE 7.—Upper, nine standard sizes of round stave baskets; lower, before standardization: only 2 of these 20 baskets are the same size.



BAE 5272

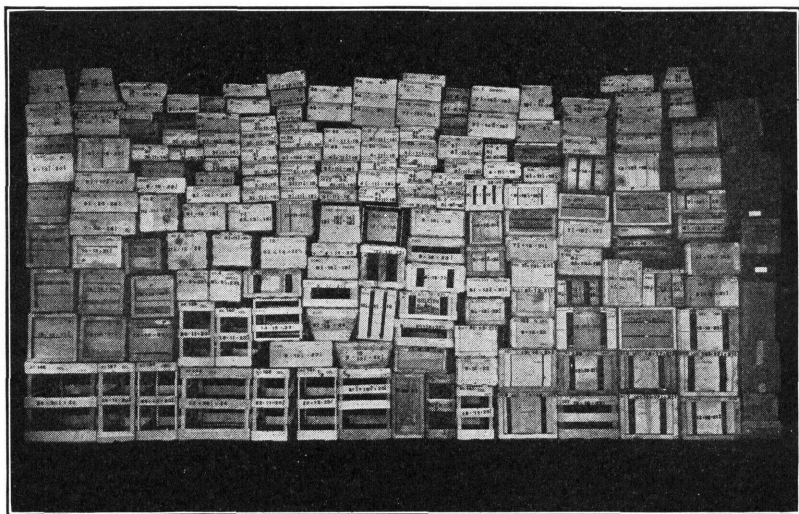
FIGURE 8.—Upper, six standard sizes of splint or market baskets (square braid); lower, in 1928 most splint baskets were of the diamond-weave type. Both over-handle and drop-handle types were widely used. Many sizes other than the 21 shown were in common use.

him with a definite basis of sale and market information so far as the size of package is concerned. Standard containers relieve him from the unfair competition of a competitor who might otherwise use a short package.

To the manufacturer standardization of containers means that production is simplified and that he can concentrate on and carry in stock relatively few sizes, with consequent lowering of manufacturing, handling, and storage costs.

To the carrier it means the elimination of many sizes that now contribute to the problem of damage in transit and narrows the problem to a few sizes for which standard strength specifications can be worked out and approved methods of stowage and bracing devised.

The confusion caused by the use of innumerable and deceptive sizes and types of containers for which standards have not been established is held by the receiving and distributing trade to constitute an unnecessary burden upon the industry.



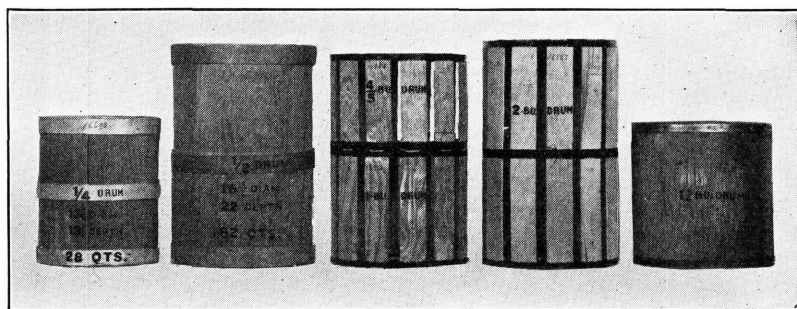
BAE 30179

FIGURE 9.—Exactly 198 different types and sizes of crates, boxes, and cartons used for fruits and vegetables in 1934. Some simplification and standardization should be possible.

NONSTANDARDIZED CONTAINERS

Although laws have now done away with a large number of unnecessary sizes of baskets and hampers, and a similar degree of simplification was probably accomplished in the case of barrels, there remain two great classes of containers for which no Federal standards have been established and to which it is generally believed that the principle of standardization could be applied with equally beneficial results, as the use of such containers of innumerable and deceptive shapes and sizes imposes a tremendous burden on the fruit and vegetable industry (fig. 9).

These two classes—crates and boxes, and sacks—are used in far greater volume for fruits and vegetables than are baskets, hampers, and barrels. Exact figures are unavailable, but it has been estimated that approximately 10 percent of the total annual movement of fruits and vegetables is shipped in bulk, 20 percent in baskets and barrels, 20 percent in sacks, and the remaining 50 percent in crates and boxes. To the limited extent that drums are used, they constitute a third class for which there are no Federal standards. In slatted form these containers are sometimes referred to as cylindrical crates (fig. 10).



BAE 33842

FIGURE 10.—Drums. From left to right: $\frac{1}{4}$ and $\frac{1}{2}$ drums for California brussels sprouts; $\frac{4}{5}$ -, 1-, and 2-bushel drums for citrus fruits, potatoes, etc.; California grape drum.

It is erroneous to infer that no simple standards exist for these containers. As a matter of fact many of the crates, boxes, and sacks used for fruits and vegetables have become virtually standard through common usage. Many States have established standards by law or regulation, but the unfortunate lack of uniformity in the provisions of these laws and their permissive nature tend to minimize the beneficial results sought.¹

Largely through the forward-looking action of the manufacturers and the cooperation of the shippers and receivers, the sizes of sacks used for fruits and vegetables have been effectively reduced in number. For some products odd-sized sacks may still be used in certain localities, but the 50-pound sack for onions and the 100-pound sack for potatoes have become well established as standard merchandizing units in the principal producing sections.

Certain containers have become about as well standardized through common usage as they could be by national regulation. Among these are the Northwest apple and pear boxes, the western cantaloup crates, the California citrus-fruit box, and some portion of those used in Florida and Texas, certain carrier crates like the four- and six-basket crates, berry crates, and perhaps some others. The carrier crates vary in dimensions, but the cups used in them are of established standard sizes.

Another group of crates and boxes approaches but fails to attain, a similar status, perhaps because they are manufactured for use in several producing sections for several different products. These prod-

¹ The provisions of State and Federal laws pertaining to containers for fruits and vegetables are summarized in a mimeographed circular issued by the Bureau of Agricultural Economics.

ucts are usually packed and sold by weight or count but for some real or fancied reason seem to require containers of slightly varying dimensions. Among the more important of these general-utility containers are the western-type lettuce crate and half crate used throughout the West and South, and in some other sections, for lettuce, bunched carrots, beets, turnips, cabbage, and similar products; the eastern-type lettuce crate; and the southern-type pepper crate used in the South for many of the products named above and also for peppers, eggplant, beans, greens, broccoli, squash, etc.

Included among the general-utility containers is the western-type peach or fruit box used for many western tree fruits, and the so-called Los Angeles lug, which is now virtually the universal package for tomatoes, a predominate package for California grapes, and an extensively used container for western pears, plums, prunes, apricots, pomegranates, and cherries.

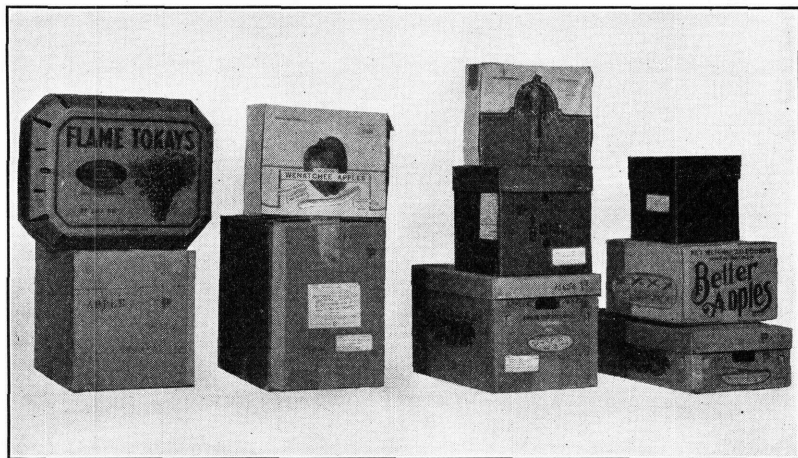
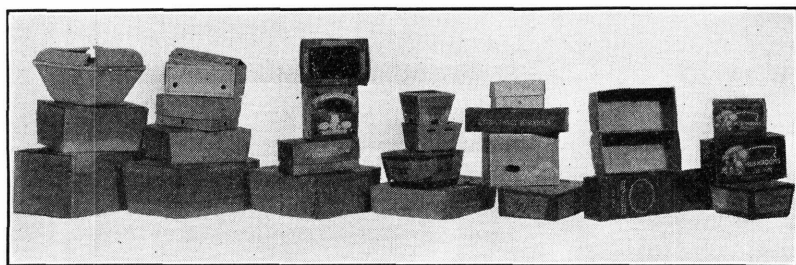
Observations seem to point to the increasingly wide use of these containers, their conformity to distinctive patterns, and the predominance of certain specifications. For a large part of the products commonly packed in them it would seem that these general-purpose containers could be manufactured nationally on common specifications.

The remaining relatively small portion of the crates and boxes are those used for special products varying in their nature and varietal and regional characteristics and requiring containers more or less especially designed as to size and shape. Among these products are asparagus, celery, cherries, and perhaps some others, universally packed and sold by weight or count. Recognition of the peculiar regional requirements of some of these products may preclude standardization of the containers on a Nation-wide basis, but in such instances that may be secondary to the establishment of definite and distinguishing local standards and their proper designation.

One of the most recent developments in the packaging of fresh fruits and vegetables is the use of containers made of solid fiberboard or corrugated paper. In certain instances this use is already appreciable, and because of the adaptable nature of these materials it is not unreasonable to expect even wider use of containers made of them. These containers now come in a variety of confusing shapes and sizes, and they sometimes present an administrative problem in classification. Some of them (by reason of shape, size, construction, and usage) may be definitely called baskets and as such are required to comply with the capacity requirements of the Standard Container Acts. Others may just as definitely be classified as boxes and are subject to no Federal regulation—for convenience these are called cartons. But certain paper containers do not seem clearly to fall in either of these two distinct classes, and so they create a highly unsatisfactory administrative situation as well as a confusing marketing condition (fig. 11).

Although they are of minor importance from the standpoint of the total annual movement, the extent to which cartons, crates, and boxes are used for products sold by the bushel (that is, by volume or by measure) seems to be increasing and is one of the least satisfactory aspects of present-day marketing and distribution of perishables.

These containers, being units or instruments of measure, perform precisely the same function as baskets and barrels, the standardization of which has been deemed to be in the best interest of the public.



BAE 33840 AND 33841

FIGURE 11.—Some paper containers for fruits and vegetables are typically boxes (cartons). Others are classed as baskets, and some are difficult to classify. (See also fig. 53.)

SOME CAUSES OF VARIATION

Regional packages are among the important factors contributing to confusing market conditions. Such packages may have been satisfactory when their use was confined to a limited territory but as modern methods of transportation bring products from every corner of the country into the great marketing centers, the diversity of styles and sizes of containers means unnecessary and costly confusion.

The numerous crates and boxes which are especially designed for certain products packed by count or weight, and which reflect at once the varying varietal or regional characteristics of the products, varying grades and sizes, varying stated quantities and methods of packing, and not infrequently merely local pride or prejudice or the desire of some shipper to use a package different from any other, constitute a class separate and distinct from those containers that are units of measure or volume. Hence they must be considered from entirely different angles. The necessity for special containers for certain products is generally recognized, but the need for them in the present multiplicity is seriously questioned.

The unfair competition of short-measure containers has been another confusing factor. Certain shrewd packers have found that by slight modifications in the shape of packages the cubical contents can be reduced substantially without noticeably affecting the appearance. Commodities sold in these containers can be offered at a lower price per package than those sold in standard packages, but the price per unit of weight is really higher. Often this has caused the general adoption of the short-measure package; and there is no end to this procedure, for once the short measure becomes established, a still shorter one is put out by the unscrupulous minority.

The lack of a unit that is accepted as the basis for all package standards adds many unnecessary packages. If a manufacturer wishes to introduce a crate into a section that now uses the barrel, instead of introducing the bushel unit, the tendency is to offer a barrel crate or a half-barrel crate. At present, crates and boxes are being manufactured in sizes based on the United States standard barrel (105 quarts) with its subdivisions, the United States cranberry barrel, the weight bushel, the heaped bushel, and the volume bushel.

NEED FOR A FIXED UNIT AS A BASIS FOR STANDARDIZATION

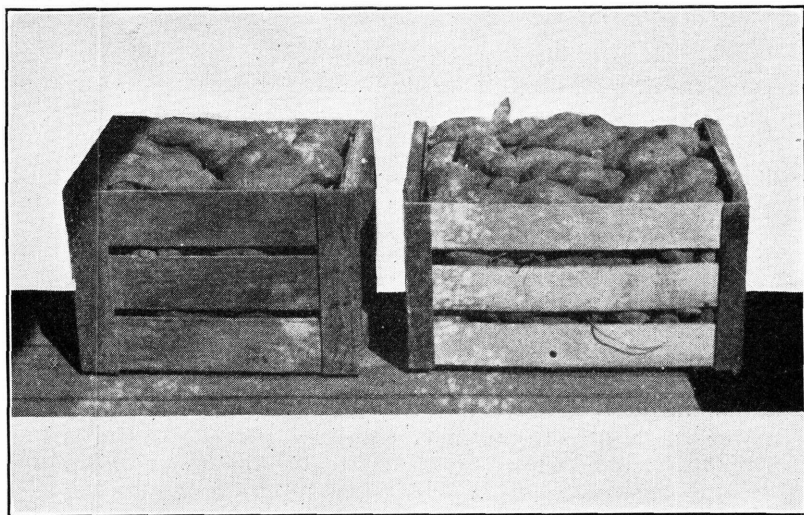
For containers that determine the quantity of contents of products sold by measure or volume the dry quart with its subdivisions and multiples is a satisfactory basis for standardizing such small containers as the berry box and small till basket, but for larger packages a larger unit is necessary so that the customer can recognize readily the various sizes. For this purpose the Winchester or struck bushel, containing 2,150.42 cubic inches, is believed to be the most satisfactory unit. The weakness of adopting arbitrary standards has already been shown as one cause of unsatisfactory conditions.

A standard unit of measure should be permanent and definite and of fixed and uniform value. The heaped bushel that has sometimes been used is far from being fixed. A proper heap has never been defined by Congress, and in those States where an attempt has been made to describe it the phraseology generally is indefinite. The heap has been referred to as a cone, the base being the top of the measure, and the height depending on the nature of the article when piled "as high as may be without special effort or design." Such vegetables as sweet-potatoes under this definition might be piled so high that the heap would be as large as the measure itself.

Many States have attempted to define the bushel in terms of weight. But, if the bushel is at the same time to be regarded as a unit of volume this is impossible, as the weight of any given volume of fruits or vegetables will vary with the size, variety, and condition of the product and the tightness of the pack.

It is not clear just what was the basis for the weight-per-bushel laws that are now in effect, and wide differences may be found in the laws of the various States. To illustrate, the legal weight per bushel of sweetpotatoes is 46 pounds in North Dakota and 60 pounds in Maryland. In 14 other States it is 50 pounds, in 10 States 54 pounds, in 5 others, 55 pounds, and in still 5 others it is 56 pounds. Similarly the legal weight per bushel of unshelled green peas is 26 pounds in Connecticut and 56 pounds in Missouri. A bushel of tomatoes is 45

pounds in Oklahoma and 60 pounds in Virginia. If the various States were to enforce rigidly these weight-per-bushel laws, interstate commerce certainly would be carried on under tremendous difficulties (fig. 12).



BAE 1744

FIGURE 12.—Two well-filled crates: Left, 1-bushel crate (12 by 12 by 15 inches inside) contains 51 pounds net of sweetpotatoes; right, crate designed to hold a "weight" bushel contains 58 pounds net of sweetpotatoes. Neither weight conforms to the legal weight per bushel of any State.

The most satisfactory unit for standardizing containers used for products sold by measure is the Winchester bushel of 2,150.42 cubic inches, first recognized in 1836 through a resolution of Congress authorizing the Secretary of the Treasury to prepare a set of standards for use in the customhouses and for other purposes. The Treasury Department adopted the Winchester bushel and most of the States now recognize this standard by legislative enactment. The Standard Container Act of 1928 prescribing the standard sizes of hampers, round stave baskets, and splint baskets defines a bushel as containing 2,150.42 cubic inches.

A package based on this fixed unit of volume, when filled level with the top, is easily recognized as full measure, and any variation or slackness in filling is at once detected even by the untrained eye.

Containers for products sold by measure, whether baskets or crates, should be such as to be readily identified and differentiated from any other, and should be correlated as to size. Otherwise on a competitive market there can be no fair comparison of values. Containers based on arbitrary standards afford an opportunity for the unscrupulous dealer to take unfair advantage of both the buyer and seller (fig. 13).



BAE 2189A

FIGURE 13.—Packages based on the standard bushel and its usual subdivisions and multiples are readily identified and differentiated. Any variation or slackness in filling is readily detected.

SALES BY MEASURE VERSUS SALES BY WEIGHT

Of the three methods by which fruits and vegetables are commonly sold—by measure, weight, and count—it is generally recognized that weight is the most definite basis of sale although, for products carefully graded to standard sizes, sale by numerical count is considered equally satisfactory.

It should be borne in mind, however, that most fruits and vegetables are marketed in package form and that the trend continues to be toward smaller packages better suited to modern merchandising methods. Obviously, only a small part of these products can be graded to standard sizes and sold by count. For obvious reasons, also, transactions involving the sale of packed containers often cannot be made on a net-weight basis without adding greatly to the cost of marketing. Many sales are made while the products are in transit to market, and even if the weight at time of packing were known, a considerable variation from this weight might occur as a result of shrinkage or decay. Then, too, a shipping package must be filled compactly without regard to weight, or the product may be damaged by movement within the container. Under such conditions any designated weight must necessarily be more or less arbitrary and hence not accurately informative, and the time and labor required to weigh each package might more than offset the good to accrue from a knowledge of the exact weight.

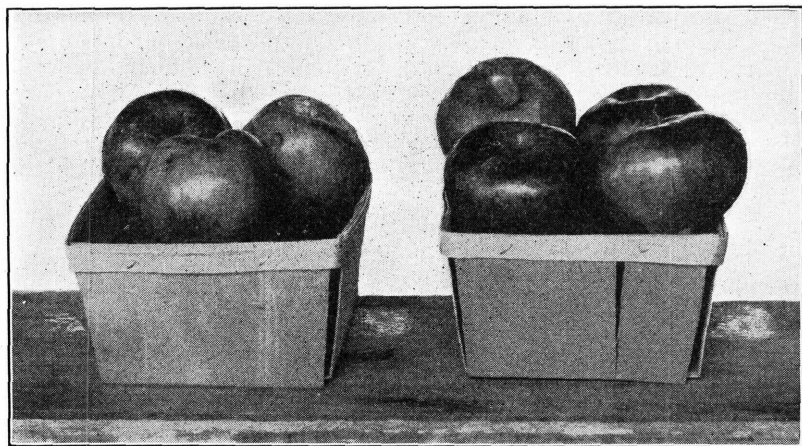
Unless the weight shown on a package accurately represents the actual weight of the contents, it serves no protective purpose other than to indicate the approximate quantity; and when containers of closely related varying sizes and shapes are used, accurate marking may be bewildering if not actually misleading because the ordinary person cannot judge readily quantities that vary by small amounts.

Moreover, the character of the contents is usually of as much consequence to the customer as is the quantity, and most fresh fruits and vegetables are now bought and sold on the basis of established Federal or State grades. In some instances, for products packed and sold by weight or count, standard packs—charted arrangements of the individual fruits or vegetables comprising the pack—indicating both the character and the quantity of the packed product, have been set

up, sometimes as a part of the established grades. Manifestly, such a standard pack must be based upon the use of a standard and uniform container.

Thus the conclusion seems inescapable that in the case of most packaged goods the expeditious handling of fresh fruits and vegetables and adequate protection for the buyers and shippers lie in the use of standard packages whereby the quantity or character of the contents, or both, can be most easily and fairly evaluated largely on the basis of fill.

Massachusetts was the first State to recognize the existence, economic importance, and indispensability of standard containers for fruits and vegetables. In 1922 they were given legal status in that State in the following words: "Except when sold in the original unbroken standard container all fruits, nuts, vegetables, and grain shall be sold at retail by avoirdupois weight, or numerical count." The term "original unbroken standard container" was defined as including barrels, boxes, baskets, or similar containers the capacity of which had been established by Massachusetts or Federal law, properly marked as to net contents in terms of weight, measure, or count, and from which the contents had not been removed and had not been repacked.



BAE 2647

FIGURE 14.—Misuse of a standard basket. Quart berry baskets are intended only for the marketing of berries and similar small fruits. There is a variation of 14 percent in the weight of the apples in the two baskets in this picture.

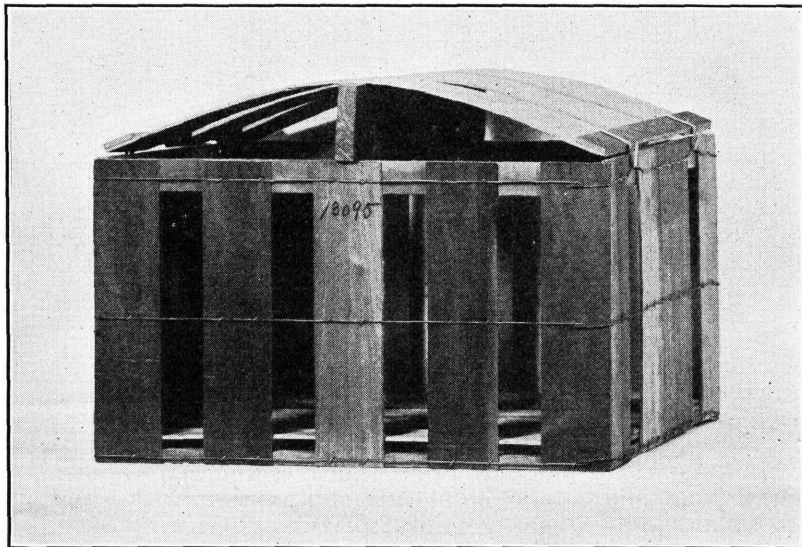
The standard of measure for dry commodities has been established by the same competent authority which established standards of liquid measure and standards of length and weight. Misuse or abuse of those standards does not nullify their integrity, and proper performance of their functions and purposes depends upon continuous supervision and regulation. Modern trade and commerce employs merchandising units based on one or another of these standards for an infinite number and variety of products (fig. 14).

Whether such units are sound and suitable depends on the peculiar conditions and factors in each instance. Thus, whether the sale of fruits and vegetables should be by weight, measure, or count depends on varying factors. In general it may be said that the sale of packed fruits and vegetables in the original standard container should be by the package, but when such containers are broken in order to dispose of the contents in smaller quantities, sales should be made by weight or numerical count.

PROPER FILLING

It is greatly to the advantage of all parties interested in marketing fruits and vegetables that, in addition to fixed standards for containers, proper methods of filling be employed. If containers are not well filled the waste space increases the package cost. As freight charges are ordinarily based on an estimated per package weight, the carriers receive pay for more than they actually carry when the containers are not full. Moreover, the product is likely to be shaken and bruised in transit and then discriminated against by dealers in the markets on account of its poor appearance.

To avoid slack filling and to insure a full pack at destination it is customary to pack fruits and vegetables with a bulge above the top of the container. The cover is then put in place by pressure. When the height of the pack is not excessive this is a desirable practice, as it prevents damage due to movement within the package. The extra quantity of produce is more than paid for by the ready sale and better price that is obtained for an attractive pack. But in recent



BAE 25095

FIGURE 15.—Crate designed for overpacking. The rated capacity of this crate is 76 quarts. The bulge provided by the oversize cover amounts to approximately 9 quarts. Practically 11 percent of the contents is outside the package.

years bulge packing has degenerated into overpacking and has been carried to extreme and indefensible lengths. Whether reflecting attempts to take unfair advantage of estimated per package weights established by the carriers, or to obtain some quantity more than is actually paid for, overpacking has become one of the most serious and costly evils of present-day fruit and vegetable marketing (fig. 15).

CONTAINERS COMMONLY USED

The containers used for shipping a given commodity may vary widely in different sections of the country. One section may use a basket, another a crate, a third a barrel, a fourth a sack. The increase in the production of fruits and vegetables and in the interstate movement of these products, the development of new producing areas, the introduction of new types of containers, the penetration into one section of the types of containers popular in another section, and the keen competition between the many producing sections and container manufacturers, have stimulated interest on the part of farmers in the containers used throughout the country for the kinds of fruits and vegetables they grow for shipping.

It is impossible to mention all of the different containers that may be used in different sections at different times. In many instances no particular container predominates for some commodities—whatever is handy is used. Fruits and vegetables taken into city markets by nearby farmers may move in a variety of containers. For instance in one New England city spinach was found on the market in lettuce crates, egg cases, orange boxes, and hampers. In this bulletin an effort will be made to mention the containers most favored by the important shipping sections.

APPLES

The three principal containers used for the shipment of apples are the barrel, the box, and the basket. For certain tender varieties like the McIntosh, as grown in New England and the Hudson River Valley, cartons of the cell type are used to some extent, and some cartons without cells are used in other sections. California has established a standard fiberboard apple box and half box with dimensions somewhat different from those of the wooden boxes. Some experimental shipments of apples in small consumer-size bags have been reported from the Northwest, but by far the largest volume of the commercial crop moves in the three types of containers mentioned.²

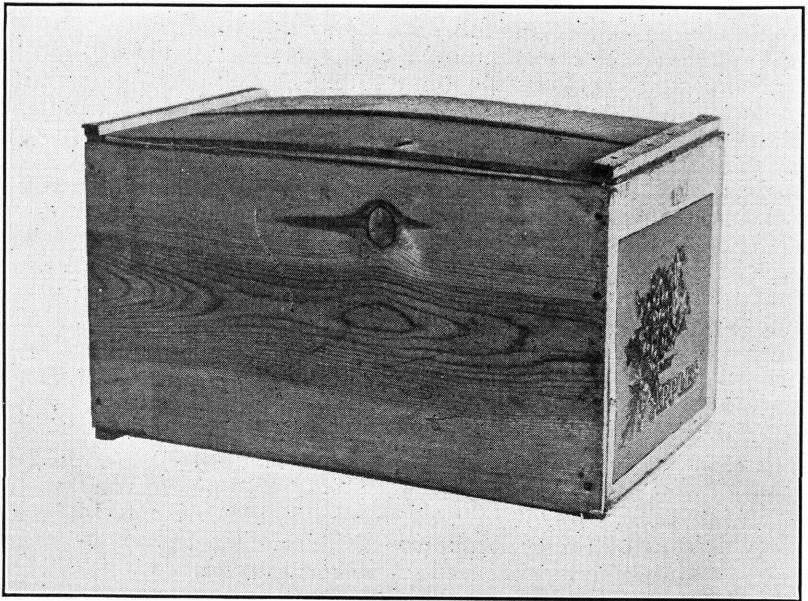
The barrel, formerly the popular package in the eastern part of the country, has, for the domestic market, been all but supplanted by baskets, and more recently by crates. For export purposes the barrel is still considered a superior package.

The northwestern apple box (fig. 16) has been standardized by law in the following States: California, Idaho, Kansas, Montana, New Mexico, Oregon, and Washington in the West; and in the District of Columbia, Maine, Massachusetts, Vermont, and Virginia in the East. Although, as in California, under certain conditions other boxes are occasionally used, the northwestern apple box is the one thought of when an apple box is mentioned. The box is also used for shipping quinces.

² The preparation and packing of apples for market are discussed in detail in Farmers' Bulletins Nos. 1457, Packing Apples in Boxes, and 1695, Preparing Apples for Market in Barrels and Baskets.

The inside dimensions of the northwestern box are $10\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches, giving it a content of 2,173.5 cubic inches, or 23.08 cubic inches in excess of the United States standard bushel of 2,150.42 cubic inches. As this is well within the excess tolerance of 50 cubic inches allowed for a bushel container under the United States Standard Container Act, this box may be considered a bushel container.

Slight variations are found in the thickness of the ends, sides, tops, and bottoms. These variations are largely due to the manufacturer's wish to cut as economically as possible the stock from which the shook is made up. Thus, ends may be $\frac{1}{16}$, $\frac{3}{4}$, $\frac{25}{32}$, $\frac{13}{16}$, or $\frac{7}{8}$ inches thick, and to maintain an inside length of 18 inches, the length of the sides, top, and bottom vary proportionately from $19\frac{3}{8}$ to $19\frac{3}{4}$ inches. Allow-



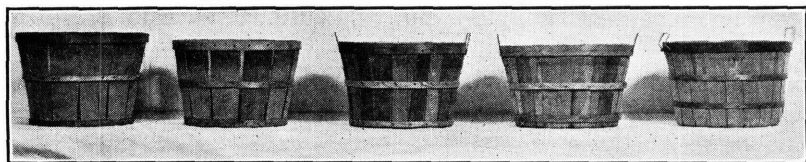
BAE 6382

FIGURE 16.—Universally accepted standard northwestern apple box.

ing for these minor variations, the northwestern apple box is the same in inside width and length as the commonly used peach and pear boxes of that territory.

In the East this box is sometimes made with paneled ends, and, in order to maintain an inside length of 18 inches, the outside length is more nearly 20 inches.

The baskets most commonly used for apples are the 1-bushel round stave, straight-side, or tub type, of which there are several styles (fig. 17). The growth in popularity of the basket followed the development of the various types of straight-side baskets and the introduction of ring-packing devices. When properly strapped, straight-side baskets have proved feasible for export shipments, particularly those constructed with solid or built-up bottoms.



BAE 25124

FIGURE 17.—Tub baskets—raised bottom, solid bottom, and three styles of continuous-stave three-hoop baskets.

Formerly 1-bushel hampers with removable bottoms were commonly used for apples in Delaware, Maryland, and New Jersey. With this type the cover was placed in position, the hamper turned bottom up, and the fruit ring-packed through the bottom end. The bottom was then forced into place and nailed in. One type of straight-side basket is made with a removable bottom and is packed in the same way.

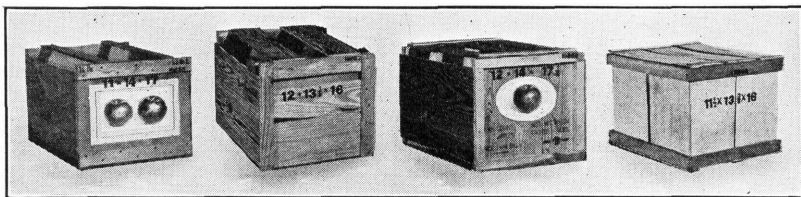
The most recently developed container to become popular with eastern apple growers is the so-called northeastern apple crate, a package which was designed primarily for the storage and transport of McIntosh and similar tender varieties grown in New England and the Hudson River Valley sections but which in various forms has come into use for all varieties over wide areas. For its original purpose the crate was made oversize so that it would hold the desired quantity, jumble-packed, with but slight rearrangement of the face. Such crates were constructed with ends extending above the sides so that they could be stacked in storage or in trucks or cars without bruising the contents. Except for two narrow slats across the top as insurance against shifting, these crates as first used were open, returnable containers.

This package received its name and came into prominence about 1934 as a result of local cooperative efforts to establish a crate of standard size and dimensions to replace the many different-sized crates then being used and to provide a uniform basis for market quotations. Although crates varying in size from 1 bushel to nearly $1\frac{1}{2}$ bushels were being used, the committee in charge disregarded both of those two standard sizes and the one in between, $1\frac{1}{4}$ bushels, and adopted as standard a crate based on a contemporary standard package of an entirely different type but upon which the current practice superimposed a bulge or crown pack.

In other words, the standard adopted for the northeastern crate was the heaped bushel—an indefinite and undefinable quantity. The inside dimensions of the crate adopted as standard for New England were 11 by 14 by 17 inches, or if triangular corner posts were used, 11 by 14 by $17\frac{1}{2}$ inches, and the capacities were 2,618 and 2,645 cubic inches, respectively. A few months later a crate with a capacity of 2,616 cubic inches and of somewhat different dimensions (12 by $13\frac{5}{8}$ by 16 inches, inside) was adopted by growers in western New York.

The crate was not long used as a jumble-pack, partly filled, open, returnable container. Almost immediately after its adoption in New England the demand arose for full, faced packs, and full closure. Thereupon crates of many sizes and dimensions came into use,

variously marked "1 Bu.," "1½ Bu.," "1¼ Bu.," "1⅓ Bu.," "1⅔ Bu.," etc. Figure 18 shows a number of different types and suggests the confusion likely to result from the adoption of arbitrary standards.



BAE 33861

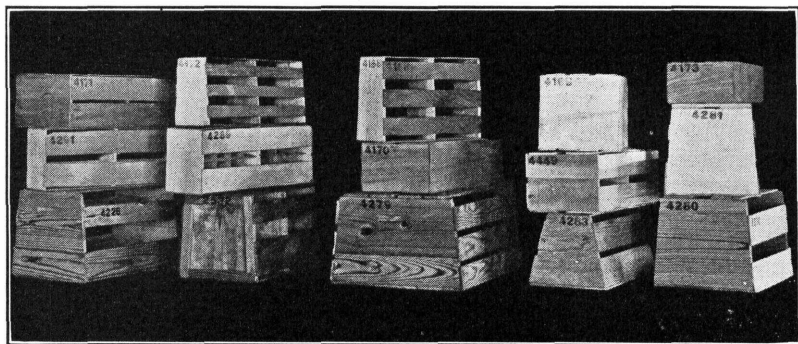
FIGURE 18.—Eastern apple crates, 1937. From left to right: So-called north-eastern apple crate, 39 quarts; crate adopted by western New York and Ohio growers, 38½ quarts; crate used by one large Virginia shipper, 41 quarts; crate used by a large Michigan shipper, 35½ quarts.

ARTICHOKES

Artichokes are commonly shipped in either of two boxes both standardized by California law—the full-sized box measuring 9¼ by 11 by 20½ inches, and the half box 4¼ by 11 by 20½ inches, inside.

ASPARAGUS³

Of necessity asparagus must be marketed in special crates or boxes (fig. 19), and to accommodate its tapering nature the pyramidal-type crate is used, either exclusively or to some extent, in all important producing sections. The California standardization law provides for two slightly different crates, one 10 inches and the other 11 inches deep. Both crates are 18 inches long inside and the tops, ranging from 9 to 10 inches wide, are the same in both, but at the bottom the deeper crate is only 11 inches wide as compared with 11½ inches in the shallower 10-inch crate. These crates have two compartments, and although usually packed with twelve 2-pound bunches they are sometimes used for loose asparagus.



BAE 13948

FIGURE 19.—Various types of asparagus crates.

³ The preparation of asparagus for market is discussed in Farmers' Bulletin 1646, Asparagus Culture.

The crate used in South Carolina and Georgia is similar to the California crate, measuring 11 inches (depth), $9\frac{1}{2}$ inches (top), $10\frac{1}{2}$ inches (bottom), and $17\frac{1}{4}$ inches (length, inside). But in early-season shipments, narrower crates 12 and 13 inches in depth are sometimes used.

The one-dozen size crate has practically supplanted the two-dozen size crate formerly used in New Jersey, Delaware, Maryland, and Pennsylvania. In Delaware, three crates are reported as usual. One is 10 inches deep, $9\frac{1}{2}$ inches at top, $12\frac{1}{2}$ inches at bottom, and $15\frac{1}{2}$ inches long, inside. Another, having the same length, is 11 inches deep, 9 inches at the top, and 13 inches at the bottom. The third has the same depth and top width as the second but is only 12 inches wide at the bottom and 15 inches long. Otherwise, in this section, typical crate dimensions are $10\frac{3}{4}$ inches, depth; $10\frac{1}{2}$ inches at the top; 12 inches at the bottom; and 16 inches, inside length. The variations reflect natural differences in the character of the stalks and in the way of trimming and packing the asparagus.

The section around Kennewick, Wash., formerly marketed its asparagus packed loose in a two-compartment flat crate with the tips toward the center partition. At present most commercial shipments from Washington originate at Walla Walla and Bingen, and one-compartment pyramidal crates are used. At Walla Walla 12 pounds of loose asparagus is packed in a crate measuring $7\frac{1}{4}$ inches (depth), $5\frac{1}{2}$ inches (top), $9\frac{1}{2}$ inches (bottom), and 12 inches (length) inside. In the Bingen section a larger crate is used, approximately $9\frac{1}{2}$ inches in depth, $5\frac{1}{2}$ inches at top, $7\frac{1}{2}$ inches at bottom, and 18 inches in length, inside. The dimensions of the crate established by Oregon regulations are depth, $10\frac{1}{2}$ inches; top, 8 inches; bottom, $10\frac{1}{2}$ inches; and length, $18\frac{1}{2}$ inches.

A rectangular-compartment crate holding 24 bunches, and another holding 20 bunches, one bunch to a compartment, is used at Anna and Cobden, Ill. At Godfrey, a pyramidal crate 10 inches deep and holding 12 variously sized bunches is used, while at Ottawa a relatively shallow pyramidal crate for twenty-four 1-pound bunches is used. Splint or market baskets are sometimes used for asparagus in Ohio.

AVOCADOS

The shipment of avocados has been almost entirely by express, and at one time refrigerator crates were used for those shipped from Florida. At present, both Florida and California pack the larger sizes in single-layer flats. In Florida the crate ranges from $3\frac{1}{4}$ to $4\frac{1}{4}$ inches in depth by 13 inches wide by 15 inches long, inside. The California flat ranges from $3\frac{1}{2}$ to $4\frac{1}{2}$ inches in depth by $13\frac{1}{2}$ by $16\frac{1}{2}$ inches. The typical Los Angeles tomato lug of the same width and length but $5\frac{1}{4}$ inches deep is used for two layer packs of the smaller sizes.

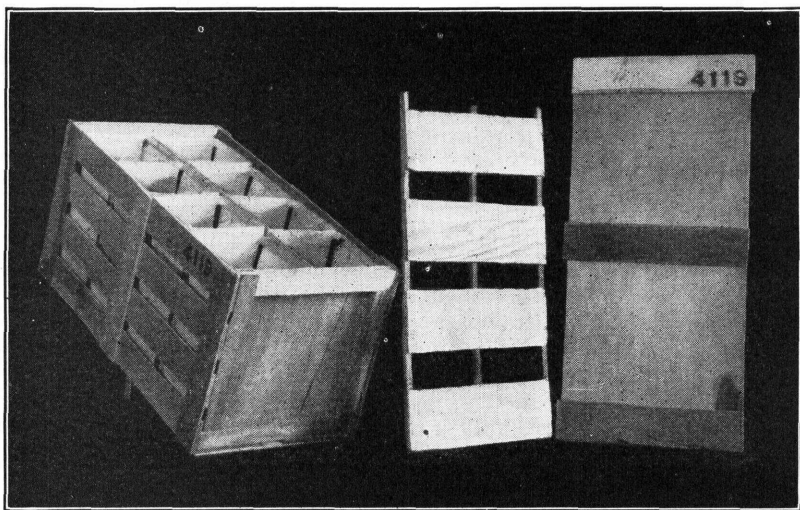
BEANS

Practically all green beans are shipped in hampers (fig. 6). There is considerable difference of opinion in various sections as to the best size of hamper to use for beans. Florida and Mississippi and some other parts of the South formerly used the 28-quart hamper, believing any larger size to be too large. Under the Standard Container Act

of 1928 this size became illegal on November 1, 1929, and since that date growers have used either the 24-quart or the 32-quart size. The North Carolina and Virginia sections use the 40-quart hamper. New Jersey uses the bushel size, which has come into use on the Pacific coast as the principal container for beans.

BERRIES⁴

Berries of all kinds are packed in $\frac{1}{2}$ -pint, 1-pint, and 1-quart baskets known as boxes or cups, the sizes of which are fixed by the Standard Container Act of 1916; crates are used only as secondary shipping containers for the cups. There are several distinct and more or less regional types of cups (fig. 5). The American type, manufactured



BAE 13008

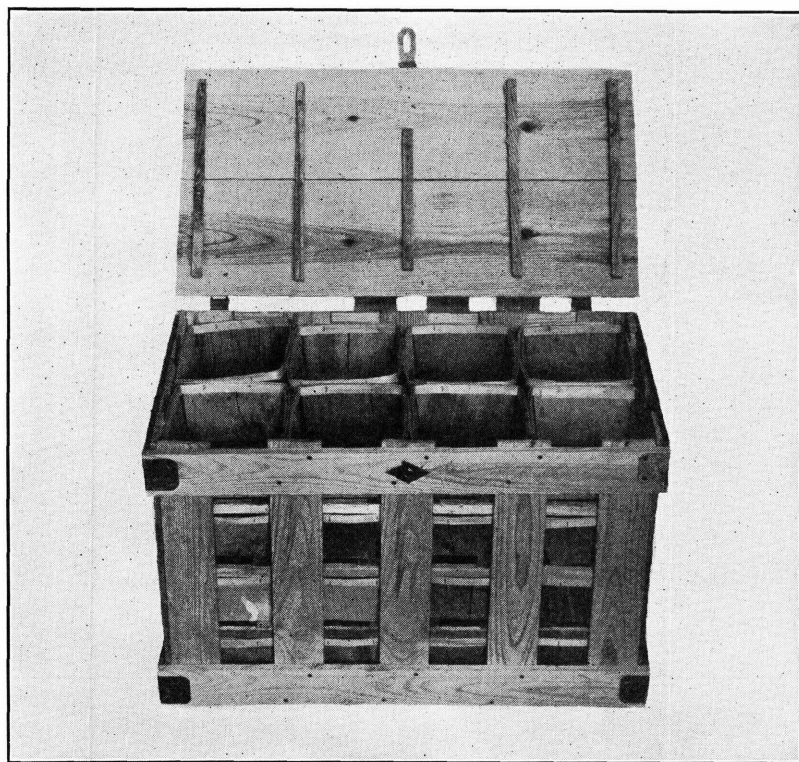
FIGURE 20.—Typical 24-quart American berry crate. The 16-quart size is only two layers deep.

throughout the East, South, and Middle West, is used over a wider territory and in greater quantity than any other. Raised-bottom Hallock cups are manufactured and used in the Lakes States and in the Pacific Northwest. The use of the Leslie type is confined to a small section in the Southwest, and that of the stitched tray to one or two cities in Missouri and Utah. Metal-rim cups are manufactured only in the East and the far West, but they are used in quantities second only to the American type for many diversified products throughout the country. Paper berry boxes were formerly considered as a separate type, but they are now made on the general lines of, and are largely interchangeable with, the American and metal-rim types. They are manufactured and used in the greatest quantity in California.

Special crates have been developed to fit the several types and sizes of cups. Unfortunately there is considerable variation in the dimensions. In the eastern sections of the country the crates generally used

⁴ The preparation of strawberries for market is discussed in Farmers' Bulletin 1560, *Preparing Strawberries for Market*.

hold 24 pints, 16 quarts, 24 quarts, and 32 quarts (figs. 20, 21, and 22). A crate holding 36 oblong pint cups (fig. 23) is used in New Jersey and has become predominant in Florida. Typical inside dimensions of the crates in most common use in the East are given in table 1.



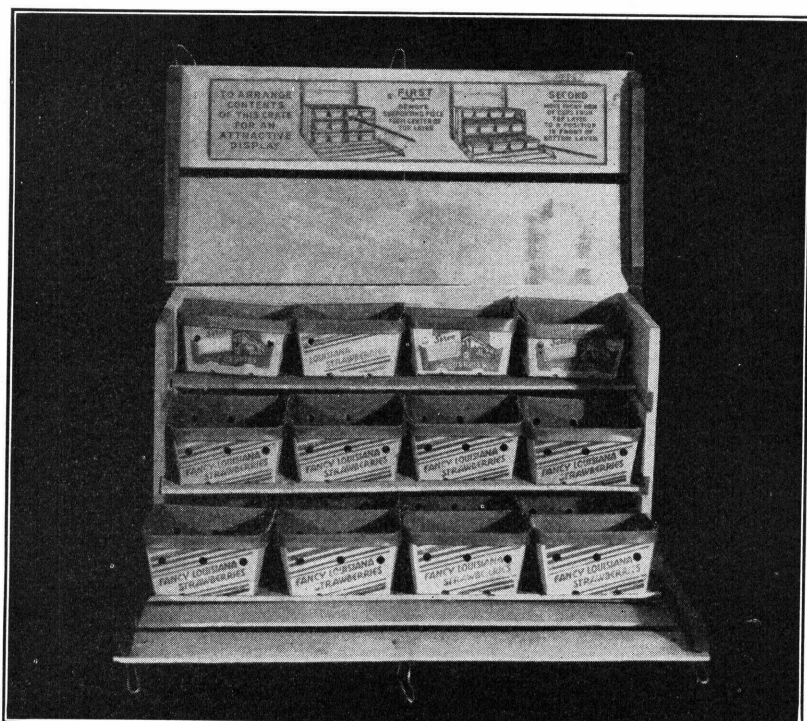
BAE 6011

FIGURE 21.—A 32-quart American berry crate with hinged top.

TABLE 1.—*Typical American-style berry crates*

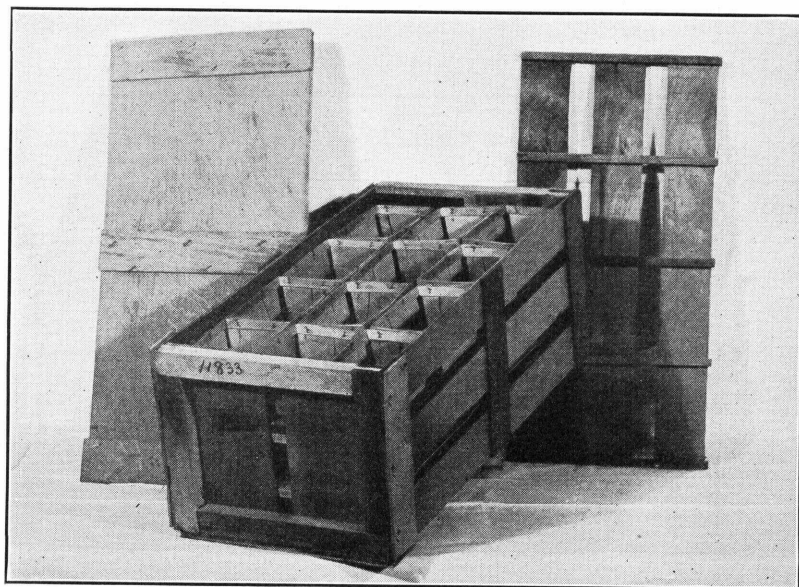
Capacity and type	Inside dimensions (inches)	Length of slat
		<i>Inches</i>
24-pint.....	9 by 9 by 18.....	20
16-quart.....	7¼ by 11 by 22.....	24
24-quart.....	11 by 11 by 22.....	24
32-quart nailed top.....	14¾ by 11 by 22.....	24
32-quart hinged top.....	14¾ by 11 by 22.....	23½
36-oblong pint ¹	9 by 11 by 22.....	24

¹ Except that 1 is oblong and the other square, oblong cups and American cups, characterized by slanting sides, are structurally very similar.



BAE 33847

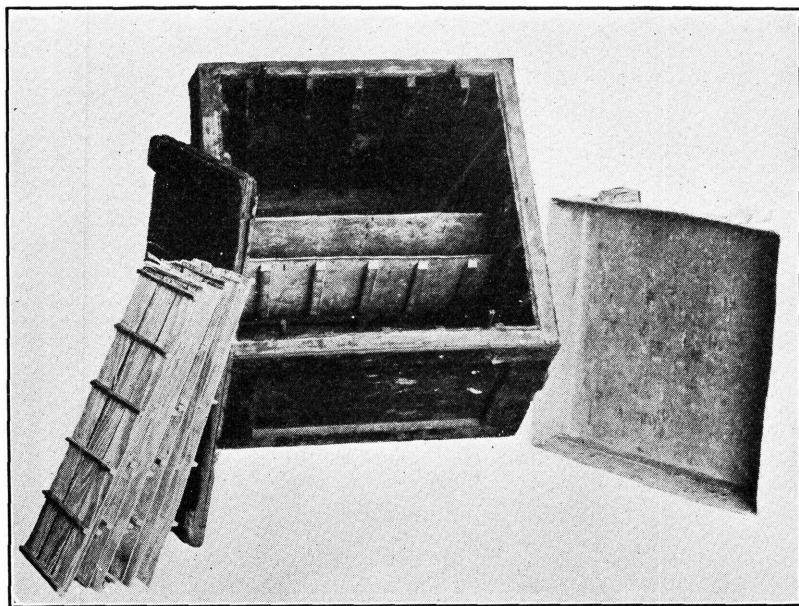
FIGURE 22.—A 24-pint display crate used in Louisiana.



BAE 23848

FIGURE 23.—A 36-oblong-pint berry crate used in Florida.

With the development of refrigerated trucks the pony refrigerator, formerly used in the shipment of early strawberries from Florida, has been practically discarded. This was a heavy case, usually holding eighty 1-quart boxes or 150 oblong pints (fig. 24). The layers of boxes were separated by dividers of the type used in the ordinary crates. Metal trays were placed in the center or in the top of the box, or both, to hold a supply of ice. Airtight covers were clamped on after the berries and ice had been packed in. These pony refrigerators were well adapted to long-distance express shipments when it was not possible to load full cars and when prices were high. Now this function is served as well or better by refrigerated motortrucks, and this does away with the necessity for returning the empty "reefers."



BAE 11285

FIGURE 24.—Pony refrigerator, formerly extensively used for early shipments of strawberries from Florida.

On the Pacific coast only half-pint and pint berry cups are used. These are of three principal types—metal-rim, paper, and Hallock. The first two are used in California. The Hallock is used in Oregon and Washington. The half-pint cups are used mainly for shipping raspberries, and the pint size for strawberries, Loganberries, blackberries, and similar sorts. The 24-pint crate is the most popular size for Hallock cups, and is made in a number of different styles.

Table 2 gives the dimensions of typical Pacific coast berry crates.

TABLE 2.—*Typical Pacific coast berry crates*

Capacity and type	Inside dimensions (inches)	Length of slat
		<i>Inches</i>
12-pint Hallock.....	2½ by 13¾ by 18½.....	19¾
12-pint San Jose.....	2½ by 13½ by 18.....	19½
12-pint Imperial Valley.....	3¾ by 13½ by 18.....	19
24-pint shallow Hallock.....	5¾ by 16½ by 22¾.....	24½
24-pint deep Hallock.....	5½ by 13¾ by 19¾.....	19¾

In the Middle West, crates for Hallock cups are usually made in 24-pint and 16-quart sizes, typical dimensions being 6 by 10½ by 20¹¹/₁₆ inches, inside, for the 24-pint crate, and 7½ by 10½ by 20¹¹/₁₆ inches for the 16-quart size. Leslie cups are packed 24 to the crate. The typical dimensions are given in table 3.

TABLE 3.—*Typical Leslie-style berry crates*

Capacity	Inside dimensions (inches)	Length of slat
		<i>Inches</i>
24 half pints.....	4 by 13¾ by 20½.....	22
24 pints.....	5½ by 13¾ by 20½.....	22
24 quarts.....	7¾ by 15½ by 20½.....	22

BRUSSELS SPROUTS

Brussels sprouts are shipped from California in drums and half drums (fig. 10) and in the artichoke box (9¾ by 11 by 20½ inches, inside). Long Island and other parts of the East use pint and quart berry boxes and crates.

CABBAGE⁵

Late cabbage is largely shipped in bulk or in sacks although some deliveries are made in barrels, hampers, crates, and baskets. In the early-season sections practically all cabbage is packaged, the use of crates and open-mesh sacks predominating. When bulk shipments are made from these sections the load is usually ventilated by means of an A-shaped slatted ventilator running lengthwise of the car.

In the past a large number of different sizes and shapes of crates have been used for cabbage and not infrequently cabbage that was not shipped in bulk has been packed in the most convenient type of container regardless of size. The diversity in cabbage crates was increased by the shippers' attempt to pack a certain weight of cabbage in a crate, the 100-pound basis being popular. As the weight varies widely according to the looseness or compactness of the heads this custom resulted in a great number of sizes. But the large cumbersome barrel size and 100-pound crates are now rarely found except for field or local use. Containers for cabbage have followed the trend during recent years towards smaller packages.

⁵ The preparation of cabbage for market is discussed in Farmers' Bulletin 1423, Preparation of Cabbage for Market.

A very considerable part of the early cabbage crop is now shipped in 50- and 100-pound open-mesh sacks (fig. 25). In California, Texas, Mississippi, Louisiana, and some other early sections, the crates most commonly used are the so-called Los Angeles or western crate and the half crate. Typical specifications for the larger crate are 13 by 18 by 21 $\frac{5}{8}$ inches, inside, and for the half crate, 9 by 13 by 21 $\frac{5}{8}$ inches, inside. (See figs. 41 and 42.) Besides these crates in which

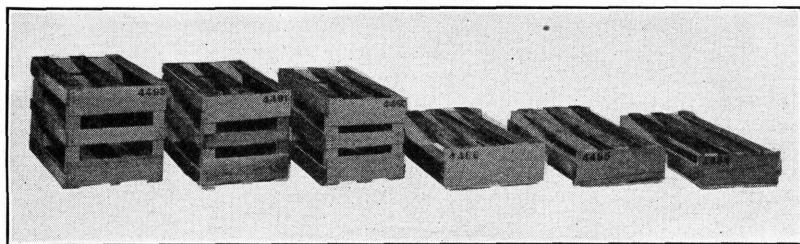


FIGURE 25.—Texas cabbage in 50-pound open-mesh bags, showing method of loading with power-blown pulverized ice.

approximately 90 to 95 and 45 to 50 pounds of cabbage are packed, respectively, crates of similar capacity but different dimensions are used in Tennessee, Virginia, Florida, and elsewhere. The measurements of some of these crates are as follows: 12 by 16 by 22, 12 by 18 by 16, and 12 by 18 by 22 inches. Cabbage is shipped from Florida, South Carolina, and Virginia in $1\frac{1}{2}$ bushel hampers.

CANTALOUPS

Over three-fourths of the carload shipments of cantaloups (in some years 85 percent) originate in Arizona, California, and Colorado. The crates (fig. 26) used in these States are designed to hold certain standardized packs of cantaloups, and their use has spread as far east as the Mississippi Valley. The same crates are used for Honey Ball melons. The sizes generally used in the West are provided for by law in Arizona, California, and Colorado except as noted in table 4. The standard packs shown are those prescribed in the Arizona law, and differ but slightly from those prescribed in the California law.



BAE 27195

FIGURE 26.—Western cantaloup crates. From left to right: Jumbo, standard, pony, jumbo flat, standard flat, and pony flat.

The standard, pony, and jumbo sizes are firmly established, but occasional variations are found in flat crates. The flats are used extensively in Colorado, and apparently their use is on the increase. As the melons are only one layer deep in this crate, they are easily inspected, and it is a convenient package for retailers to handle. The pony crates have their greatest use at the beginning and at the end of the season, when the melons are small.

TABLE 4.—Standard western cantaloup crates

Type of crate	Inside dimensions ¹ (inches)	Standard packs of melons
		<i>Number</i>
Pony flat.....	4 by 12 by 22 $\frac{1}{2}$	15, 18.
Standard flat ²	4 $\frac{1}{2}$ by 13 by 22 $\frac{1}{2}$	9, 12, 15.
California Standard flat ³	4 $\frac{1}{2}$ by 13 $\frac{1}{2}$ by 22 $\frac{1}{2}$	9, 12, 15.
Jumbo flat.....	5 by 14 $\frac{1}{2}$ by 22 $\frac{1}{2}$	8, 9, 10, 11, 12.
Pony crate ³	11 by 11 by 22 $\frac{1}{2}$	45, 54.
Standard crate.....	12 by 12 by 22 $\frac{1}{2}$	27, 36, 45.
Jumbo crate.....	13 by 13 by 22 $\frac{1}{2}$	27, 36, 45.

¹ Outside length of slat for all sizes, 23 $\frac{1}{2}$ inches.

² Not standard in California.

³ Not standard in Colorado.

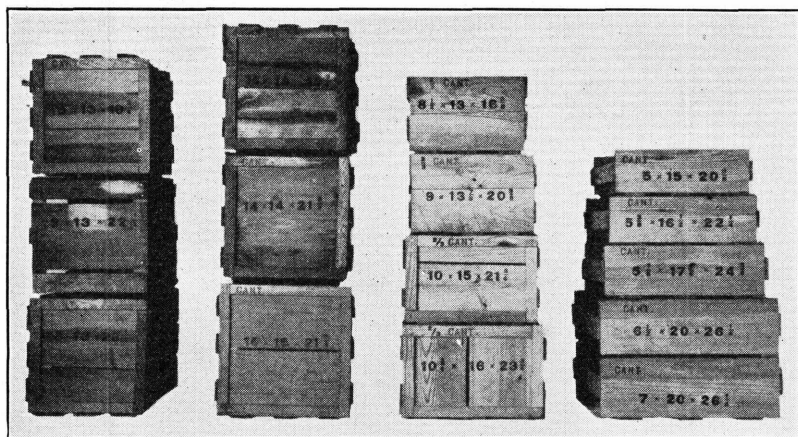
Although the eastern crates are often known by the same names as those used in the West, they are often of different construction and

dimensions. The paneled head is often used. In the southeastern section the standard cantaloup crate measures 12 by 12 by 22 inches, inside, with an outside length of 24 inches. This crate, therefore, is one-half inch longer, over all, than the western crate, and one-eighth inch shorter inside, the difference being due to the use of the paneled head.

In Maryland and Delaware few pony crates are used. Crates with 12- by 12-inch heads are known as standard, and those with 13- by 13-, 14- by 14-inch, and larger heads are known as jumbos; but in all of them the length of slats ranges from 22 to 26 inches. The flats used in this section are somewhat deeper and wider than the western type and vary in length from 22 to 28 inches. Typical heads measure 5 by 15, 5½ by 16½, and 6 by 18 inches.

In recent years a new type of double flat, or two-thirds crate, has become popular in this section and in North Carolina. One manufacturer reports four sizes of heads as being most important—8½ by 13, 9¼ by 14, 10 by 15, and 10¾ by 16 inches, and slats from 22 to 28 inches long are used. The two-thirds crate used in North Carolina measures 8 by 12 by 22 inches, inside.

Possible combinations of these various sizes of heads and slats are almost incalculable, as are the different sizes of crates actually used in any one season. One of the reasons given for the multiplicity of sizes is that many varieties of melons are grown; but the principal reason is the attempt by growers to pack always the same number of melons to the crate. As the melons are likely to vary considerably in size this attempt to maintain a fixed count per crate has resulted in the practice of building crates to fit the pack instead of varying the pack to fit a few standard sizes of crates, as is done in the West. The latter method is believed to be the more advantageous not only from the standpoint of economical manufacturing and handling, but also in providing a more definite basis for buying and selling, since there can then be no uncertainty as to exactly what is meant by such trade terms as "pony 54," "standard 45," or "jumbo 36" (fig. 27).



BAE 30166

FIGURE 27.—Maryland cantaloup crates—full-size crates, two-thirds crates, and flats. Other sizes of heads and slats of varying lengths are used.

Much the same variation in crates which exists in Maryland is found in Michigan, except that in the latter State a great many pony crates with 9- by 9-, 10- by 10-, 11- by 11-inch heads are used. Only a few of the larger square-end crates are used. The flats have heads measuring 4½ by 14, 5 by 14, and 5 by 15 inches, and the slats on both styles of these crates vary in length from 18 to 24 inches. Here again the variation in sizes is due to an attempt to make the crate fit the pack. A considerable portion of the cantaloups grown in Michigan and Indiana, especially the smaller sizes, are shipped in bushel baskets and in 12-quart Climax baskets, which readily accommodate irregular sizes.

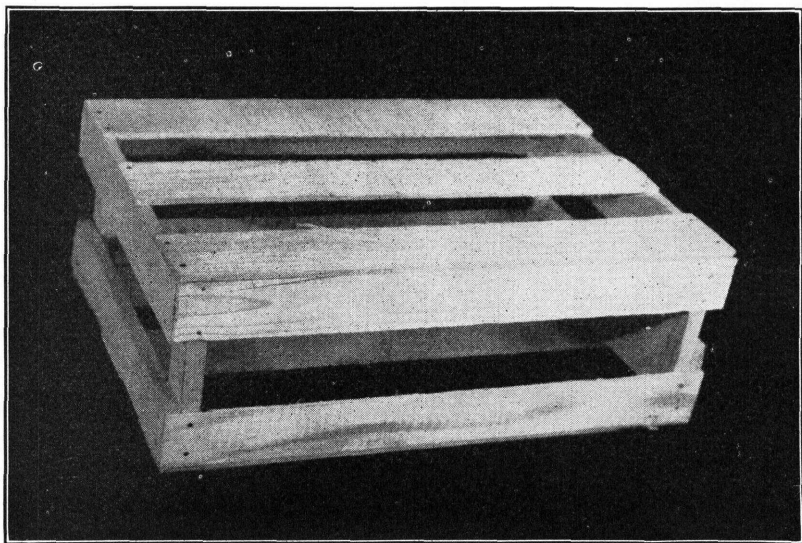
MISCELLANEOUS MELONS

Honey Dew melons are packed for the most part in pony, standard, and jumbo flats. The standard and jumbo are the sizes principally used. The inside measurements of these crates as fixed by law in Arizona, California, and Colorado are as follows: Pony, 5 by 14½ by 22½ inches; standard, 6½ by 16¼ by 22½ inches; and jumbo, 7½ or 7¾ by 16¼ by 22½ inches. The outside length of slat for all sizes is 23½ inches.

Crates known in some markets as "trunks" are sometimes used. One, with heads measuring 8¾ by 16 inches, is commonly used for Casaba melons. For Persian melons one manufacturer's tariff lists four crates: 6¾ by 12 inches, 7¾ by 14 inches, 9¾ by 16 inches, and 11¾ by 18 inches. The length is uniformly 22½ inches, inside.

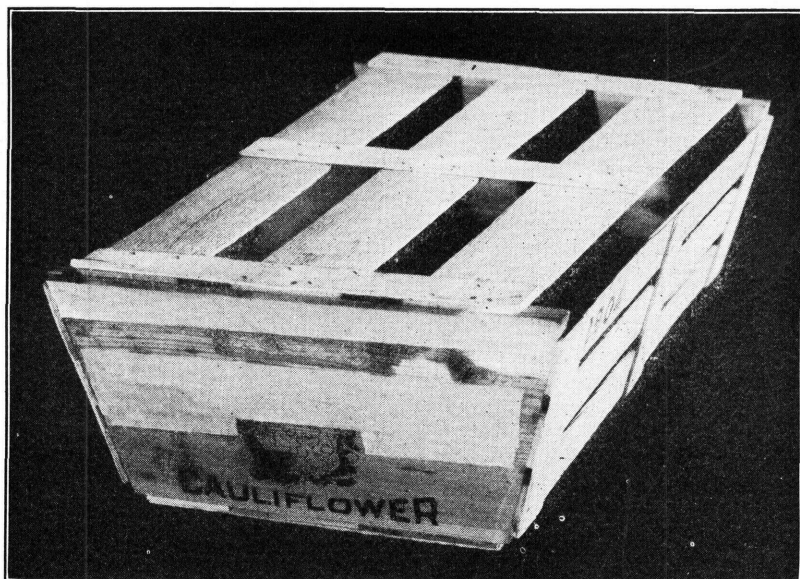
CAULIFLOWER

Cauliflower, because of the nature of the commodity, is generally packed in crates (figs. 28 to 30, inclusive). The California standard



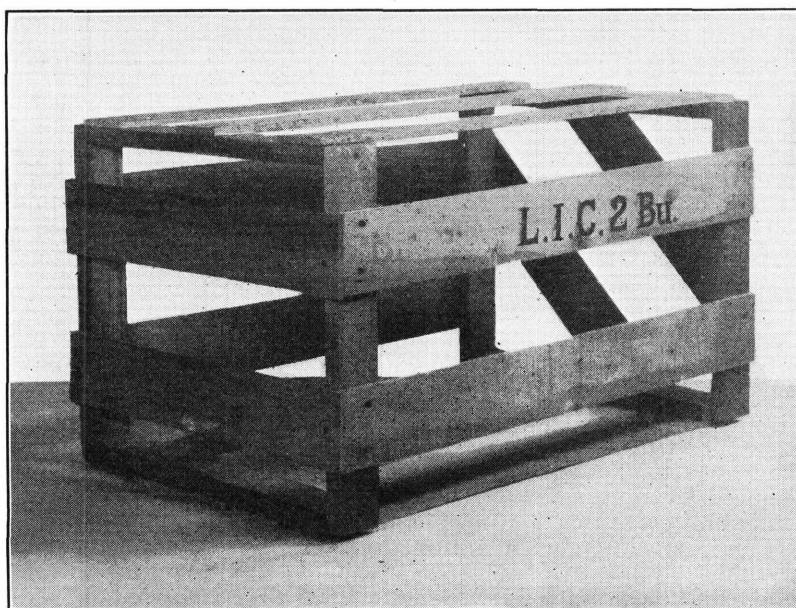
BAE 9578

FIGURE 28.—Cauliflower crate, western style.



BAE 11040

FIGURE 29.—New York cradle crate for cauliflower.



BAE 2430

FIGURE 30.—Long Island cauliflower crate.

pony crate (fig. 28) established by law in 1933, measures $8\frac{1}{2}$ by 18 by $21\frac{1}{8}$ inches, inside, and this crate is used also in Arizona and Colorado. A crate having the same width and depth but $23\frac{1}{8}$ inches long is also used, the outside length, $24\frac{1}{2}$ inches, being the same in both. Two crates are prescribed in State regulations in Oregon. One measures $8\frac{1}{2}$ by 18 by $22\frac{3}{8}$ inches, inside, with an outside length of slat of $24\frac{1}{2}$ inches. The dimensions of the other, known as the jumbo crate, are 8 to $8\frac{1}{4}$ inches deep, and $17\frac{1}{2}$ inches wide, inside, with slats from 24 to $24\frac{1}{2}$ inches long. The crate reported from Washington measures $8\frac{1}{2}$ by 17 by 22 to $22\frac{1}{2}$ inches, inside.

For trimmed cauliflower some California shippers use appreciably smaller crates, one of which measures $6\frac{5}{8}$ by $15\frac{5}{8}$ by $19\frac{1}{8}$ inches, inside.

One of the most common and satisfactory of the eastern cauliflower containers is the New York cradle crate (fig. 29), which is used principally in the western part of the State. It affords plenty of ventilation in transit because of its shape, and is an attractive sale package, as the cauliflower heads can be seen from either the top or the bottom. Its inside dimensions are, depth, 8 inches; width, $13\frac{1}{2}$ inches at bottom, 18 inches at top; length, $22\frac{3}{8}$ inches. A similar crate used in Tennessee is $9\frac{1}{4}$ inches deep, 16 inches at top, 10 inches at the bottom, and 29 inches long, inside.

An entirely different crate (fig. 30) is used in the Long Island cauliflower section. Although this crate has been in use for many years, some manufacturers report the depth and width as 13 by 15 inches, whereas others report $13\frac{1}{2}$ by $15\frac{1}{2}$ inches, the length of slat being uniformly 23 inches. This crate does not seem to have commended itself to any growers other than those on Long Island. The Catskill Mountain section uses several different types of crates and has not as yet settled on any one as standard.

In Michigan a crate that measures 8 by $19\frac{1}{2}$ by $27\frac{1}{8}$ inches, inside, is used, from 12 to 16 heads being packed in it.

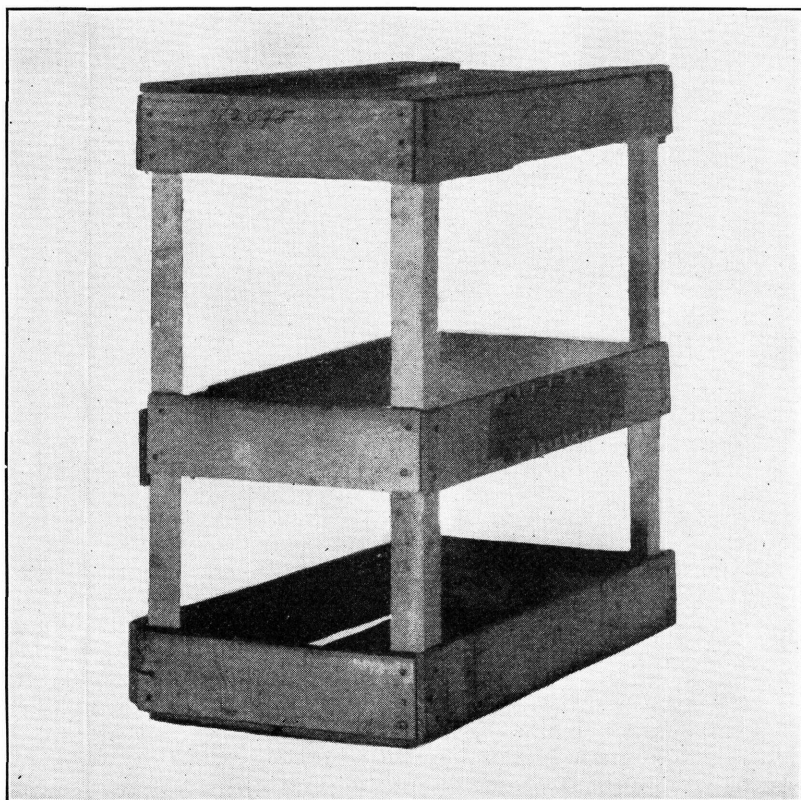
CELERY

Celery must necessarily be shipped in crates and boxes designed especially for it. It may be packed in the rough, or it may be trimmed, washed, and bunched. When shipped from the producing sections in the rough, it is trimmed, washed, and bunched by city distributors. Carload shipments of celery are made from 14 States, but the most important shipping sections are in Florida, California, New York, Michigan, and Oregon, which shipped 17,707 of the 17,998 carloads that moved in 1935. For practical purposes, therefore, consideration need be given only to the crates used in these five States.

For western celery the old California crate, sometimes referred to as the full-size or standard crate, measuring 20 to 24 inches, depth, 24 inches, width, and $20\frac{1}{8}$ inches, length, inside, has been almost entirely displaced by the half crate in recent years. The predominant style of this half crate (fig. 31), is constructed with corner posts, rails, and slats as in the large crate, and measures 11 by $20\frac{1}{8}$ inches, width and length, with depths usually 22 or 24 inches, inside.

The Florida crate (fig. 32), sometimes called the one-half crate or 10-inch crate, is used for the shipment of all full-length, untrimmed Florida celery. The dimensions are 20 inches, depth; 10 inches, width; and 22 inches, length, inside. No variation is made in depth to adjust

it to differences in the length of the celery. Florida shippers make a practice of sizing their rough celery, and pack 3, 4, 6, 8, or 10 dozen stalks to the crate.

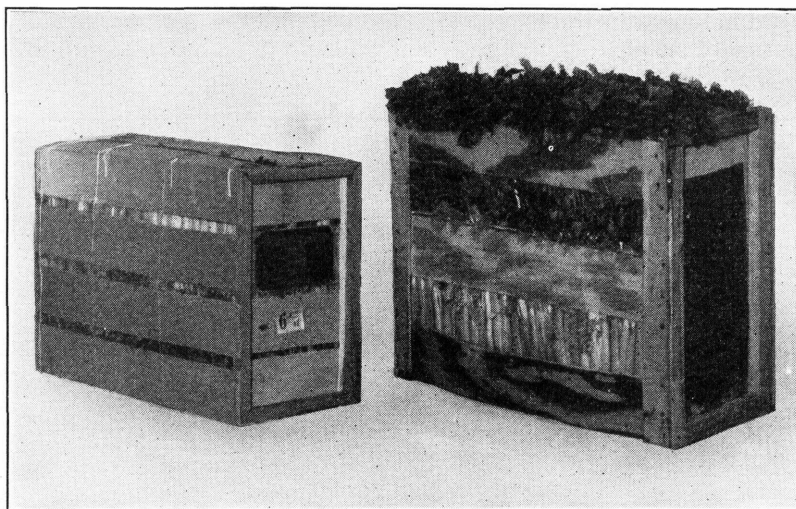


BAE 23879

FIGURE 31.—Western half crate for celery.

Before 1935 practically all Florida celery was packed with full tops in the standard crate. Since that time an increasing part of the crop is trimmed to 16 inches over-all length and packed with tops and bottoms reversed in alternate layers. The crate used is the same as the standard crate in width and length but is only 16 inches deep (fig. 32). As the quantity of edible celery is practically the same in both crates, substantial economies are claimed for the smaller crate in package and transportation costs, and it eliminates much of the trimming operation at destination.

The trimming is usually done in the field. A special field crate, open at the top and with one side completely removed except for a 2-inch riser, is used. The stalks are butted tight against the closed side and pressed down compactly with a pressboard. The riser at the bottom and the pressboard at the top furnish cutting edges against which the tops of the celery are lopped off with a large knife or a saw. The celery is then graded and washed in the usual way preparatory to packing.



BAE 33769

FIGURE 32.—Florida celery crates: Left, celery trimmed to uniform length of 16 inches; right, celery with full tops in standard Florida crate.

The crate used for rough celery in Michigan, and in New York and New Jersey, is generally called the two-thirds crate, and has been standardized by all three States. The inside dimensions are 22 inches, depth; 16 inches, width; and 20 $\frac{1}{2}$ inches, length, inside. In Michigan the length is specified as 21 inches, and the crate is used chiefly as a field or storage container. Smaller sizes of this crate variously designated "half crate," "one-third crate," etc., have been observed in New Jersey and New York.

A great number of sizes of crates have been and still are used for rough celery in other sections, but it is believed that the tendency is toward the adoption of some one of the half crates mentioned. The larger of two crates used in Colorado is about halfway between the California and the New York crate, measuring 20 by 21 by 22 inches, inside. The Colorado half crate is 12 by 21 by 22 inches, inside.

Michigan is the principal State using special containers for washed celery, and both boxes and crates are used. By agreement of growers and shippers, standard terminology and dimensions were adopted in 1936. One crate is known as the "hiball" and another as the "hyboy." The ends of the former measure 8 by 10 inches, and of the latter 12 by 18 inches. The inside length of the hiball is restricted to 18, 20, or 22 inches, but that of the hyboy varies from 6 to 30 inches by 2-inch steps. Celery packed in these crates is sold by the dozen bunches, and the variations in length are used to fit the crate to the number of dozens it is desired to pack.

The boxes are called flats and squares; the heads are, by agreement, 5 by 11 $\frac{1}{2}$ and 8 by 8 inches, respectively. Five lengths of slats are permitted in both: 14, 16, 18, 20, and 22 for the flats, and 10, 12, 14, 16, and 18 for the squares. Celery in these boxes is usually sold by the box. The diversity of sizes in these crates and boxes is due largely to the demands of wholesale receivers for different quantities and different sizes of celery from time to time throughout the season.

Special crates for washed celery are not used to any extent in the other principal producing sections. New York uses the two-thirds or New York crate and the 10-inch or Florida crate. Florida and California ship washed celery in the same kinds of crates as used for rough stock. Colorado uses no crates for its washed celery but ships it tied in bunches in carloads of mixed vegetables.

CHERRIES

The use of boxes for shipping cherries is confined chiefly to the Pacific Coast and Rocky Mountain States. In 1935, 1,480 of the 1,529 carload shipments originated in California, Washington, Oregon, and Idaho. There is much confusion as to the sizes of cherry boxes, and the standards established by several States throw little light on the situation, because of their multiplicity and because in so many instances boxes that are not standard are used (table 5).

The wish of certain shippers to use distinctive packages, and attempts to pack a certain number of pounds to a box, have undoubtedly been responsible for some of the variations in the specifications used. Again, cherries are said to vary in weight from one season to another, and from the first of the harvest to the last, depending upon the sugar content. Sweet cherries have a relatively high value per pound, and the shipper who pays cash for loose fruit must necessarily pack close to the weight marked on the container or lose much of his profit through overweight. But it is doubtful whether so many different types of containers are necessary.

TABLE 5.—Cherry box standards established by State law or regulation

Common name	Inside dimensions (Inches)	Standardized by
Eastern flat.....	2¼ by 9 by 18 to 18½ ¹	California, Oregon, Washington, Idaho.
Tozzi lug.....	2½ by 11 by 16½ ¹	California.
Campbell lug.....	3¾ by 11½ by 14½ ²	Do.
Do.....	4 by 11 by 14 ³	Oregon.
Calex lug.....	3¾ by 13½ by 16½ ¹	California.
Lambert lug.....	3 by 9¾ by 18½ ¹	Do.
15-pound box.....	3 by 11 by 18.....	Idaho.
Peach box.....	4 by 11½ by 18.....	California.
California box.....	4 by 13½ by 16½ ¹	Do.
Los Angeles lug.....	5¾ by 13½ by 16½.....	California, Oregon.
20-pound box.....	4½ by 9 by 18 ¹	Washington, Idaho.
Northwest fancy box.....	4½ or 4¾ by 8½ by 17¼.....	Oregon.

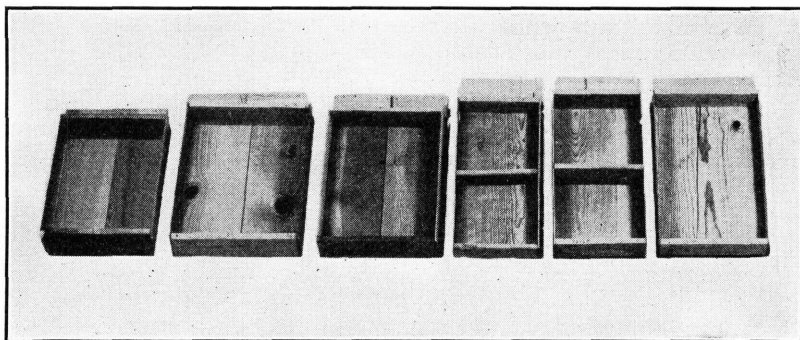
¹ Specifically for cherries.

² ¾-inch cleat usually used to increase depth.

³ Oregon regulations permit ¼-inch variation in depth and ½-inch variation in width but require 15 pounds net contents.

In addition to the prescribed standard boxes, all of which are probably used to some extent, many others have been noted. Among them are the Brookside lug and the Guiffre lug (variants of the Calex lug), and the Clement and Martino lugs which are shallow variants of the peach box (fig. 33). But it appears that, for the large bulk of western cherry shipments, six packages are particularly important.

The eastern flat, holding about 8 pounds of fruit, is used rather extensively in California for early shipments. Few appear to be used elsewhere. The Lambert lug holding about 12 pounds is also popular in California and is used in Washington. The Los Angeles lug, hold-



BAE 25466

FIGURE 33.—Western cherry boxes vary in size, shape, and construction. From left to right: Campbell lug, Brookside lug, Guiffre lug, eastern flat, Lambert lug, and Clement lug.

ing 27 pounds with cleats, and 24 pounds without cleats, is used chiefly for local shipments in California. In Washington, this package, usually without cleats, is frequently packed with 20 pounds net of cherries. Used in the same way in Oregon, it is second in popularity there only to the northwest fancy box in which the cherries are row-packed throughout. In recent years the Campbell and Calex lugs, each holding about 15 pounds of cherries, have become predominant in western shipments. The former is usually single or double-faced and filled; the latter is frequently used for loose cherries. Unfortunately as used by different shippers it varies considerably in width and length as well as in depth. A crate that holds twelve 1-pint boxes is used for cherries in the Santa Clara Valley of California.

In the Eastern States, notably in Michigan and Wisconsin, cherries are packed either in the 16-quart American or Hallock berry crate. In New York, New Jersey, Maryland, and Pennsylvania, the 32-quart American crate is used, and in these States some cherries are marketed in 4- and 12-quart Climax baskets.

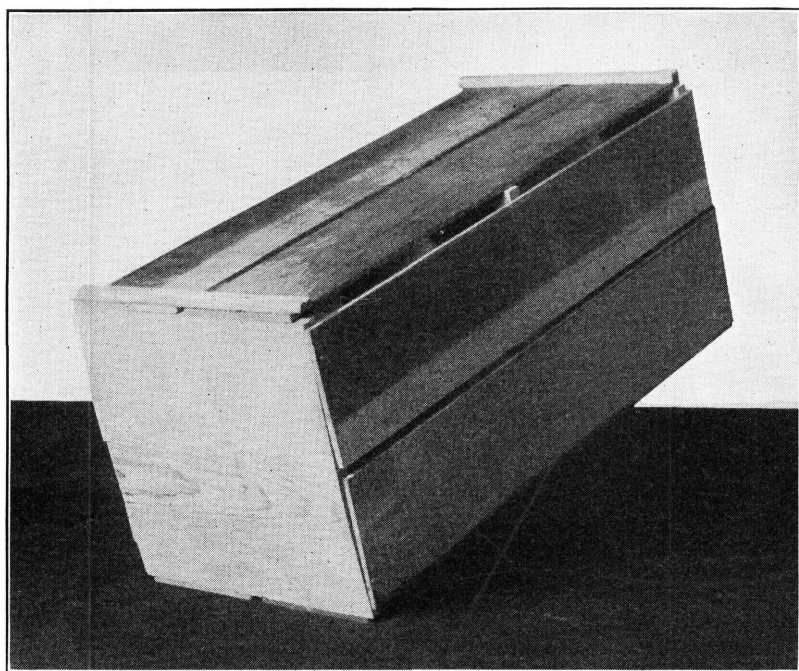
CITRUS FRUIT⁶

Formerly only two orange boxes were in common use—the California box that holds approximately $1\frac{1}{2}$ bushels and the Florida box that holds $1\frac{3}{4}$ bushels (figs. 34 and 35). The former has been standardized by law in California and Arizona, and the latter in Florida and Texas.

The essential difference in the two boxes is in the size of the heads, the California heads measuring $11\frac{1}{2}$ by $11\frac{1}{2}$ inches and the Florida heads, 12 by 12 inches. Whatever the original cause of this slight difference, it should be borne in mind that Florida uses the panel head, whereas California uses a solid head, which, if made of one piece, can hardly be cut wider than $11\frac{1}{2}$ inches from the standard 12-inch board.

From time to time there has been discussion as to the desirability of adopting one standard orange box, but the difference in the method

⁶ The harvesting and handling of citrus fruits in the Gulf States is discussed in Farmers' Bulletin 1763, *Harvesting and Handling Citrus Fruits in the Gulf States*.



BAE 4580

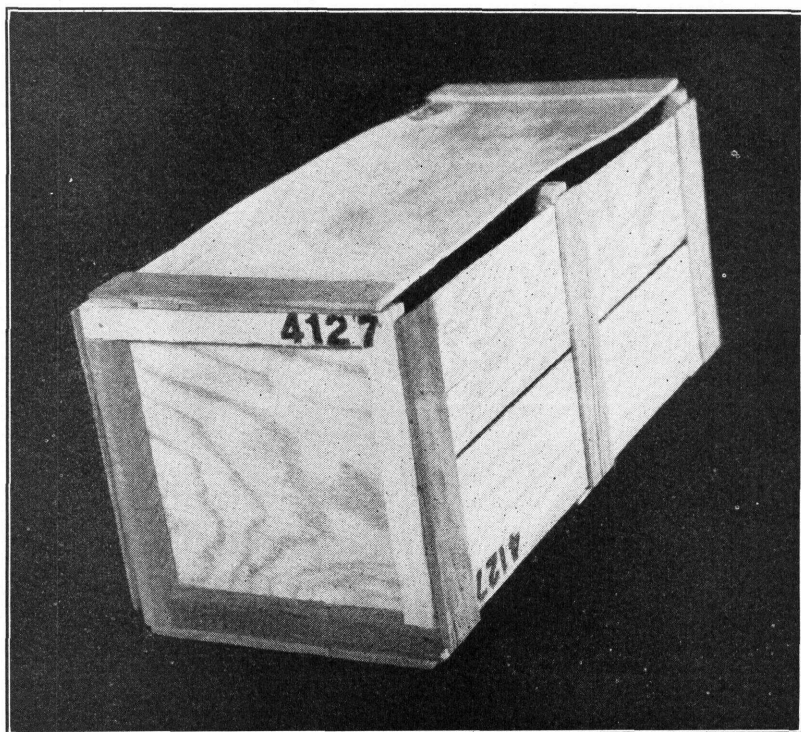
FIGURE 34.—Standard California and Arizona orange box.

of construction and the fact that the packs now in use have been worked out on the basis of the present measurements have prevented any attempt to bring about uniformity. Furthermore, citrus fruit as packed in crates is sold by numerical count and not by measure.

A half size of the Florida orange box, called a strap, has been standardized by law in Texas, and by agreement in Florida. The full-sized box is used for grapefruit. California and Arizona have standardized a half size of its orange box and have adopted standard and jumbo lemon boxes and half sizes of each. Table 6 gives the dimension specifications for the various citrus boxes standardized by State law.

TABLE 6.—Standard citrus fruit boxes

Type of box	Net inside dimensions (inches)	Outside length of slat	Capacity
		<i>Inches</i>	<i>Cubic inches</i>
Florida and Texas orange	12 by 12 by 24	27	3,456
Florida ½ orange	6 by 12 by 24	27	1,728
California and Arizona orange	11½ by 11½ by 24	26	3,174
California ½ orange	5¾ by 11½ by 24	26	1,587
California standard lemon	10 by 13 by 25	27	3,250
California ½ standard lemon	5 by 13 by 25	27	1,625
California jumbo lemon	11½ by 13½ by 25	27	3,755
California ½ jumbo lemon	5¾ by 13½ by 25	27	1,877



BAE 13023

FIGURE 35.—Standard Florida and Texas orange and grapefruit box.

In recent years increasing quantities of oranges and grapefruit from both Texas and Florida have been marketed in tub baskets, open-mesh sacks, and wire-bound crates. Consumer-size sacks of 5-, 8-, and 10-pound capacity have been used to some extent, but the larger sizes are by far the most popular. Texas regulations authorize the use of $\frac{1}{8}$ -, $\frac{3}{8}$ -, $\frac{1}{2}$ -, 1-, and 1 $\frac{1}{2}$ -bushel sacks. The wire-bound crates used for citrus fruit are designed to be packed flat without any bulge and are made chiefly in three sizes— $\frac{1}{8}$, 1 $\frac{1}{2}$, and 2 bushels. During the 1937–38 season more than half the shipments from Florida and Texas were made in the 2-bushel size package, but administrative restrictions subsequently imposed by both States may curtail its future use. Only a few shipments in this container were reported from California. In Florida some of the $\frac{1}{8}$ -bushel and 1-bushel, two-compartment crates similar in design to the standard box are used. The Florida half box is a popular package for tangerines, but tub baskets are also used. The half strap is used largely for satsuma oranges from Alabama.

CRANBERRIES

Containers for cranberries are based almost entirely on the standard cranberry barrel established by Congress in 1915. This law fixes such dimensions as to produce a barrel having a content of 5,826 cubic inches. This barrel, designed to hold 100 pounds of cranberries,



BAE 27805

FIGURE 36.—A good example of standardization—One-eighth, one-fourth, and one-half cranberry-barrel boxes.

is no longer used, nor are the subdivisions known as the one-third, one-half, and three-fourths barrel. Instead boxes equivalent to one-eighth, one-fourth, and one-half cranberry barrels are used almost exclusively and are designated one-eighth, one-fourth, and one-half cranberry-barrel boxes, respectively (fig. 36).

Although the style is obsolete, the standard cranberry barrel has been adopted by law in the District of Columbia, Illinois, Massachusetts, Michigan, New Jersey, Oregon, Virginia, Washington, and Wisconsin. Six States—Illinois, Massachusetts, New Jersey, Oregon, Washington, and Wisconsin—have provided by law for standard cranberry boxes. The box adopted by Massachusetts and New Jersey has inside dimensions of $7\frac{1}{2}$ by 12 by 22 inches, with a capacity of 1,980 cubic inches, 38 cubic inches in excess of a one-third cranberry barrel. Oregon provides for the use of a one-third cranberry-barrel box; Washington specifies that the cranberry-barrel box shall contain 1,942 cubic inches or one-third of a barrel; Wisconsin and Illinois specify a 1-bushel box as standard for cranberries.

The boxes actually used for shipping cranberries (one-eighth, one-fourth, and one-half cranberry-barrel boxes) have not been adopted as standard by any State but have come into use as a matter of trade practice on the part of organizations that handle and ship cranberries and are usually legibly marked as to size in terms of the cranberry barrel.

The one-fourth cranberry barrel box is most widely used and is made in two styles. One has inside dimensions of $9\frac{1}{4}$ by $10\frac{1}{2}$ by 15 inches; the other measures $9\frac{1}{2}$ by 11 by $13\frac{1}{16}$ inches, inside, and contain 1,456.9 and 1,456.5 cubic inches, respectively, or one-fourth of a cranberry barrel. One of the most commonly used one-eighth cranberry-barrel boxes measures $7\frac{1}{2}$ by $8\frac{3}{8}$ by $11\frac{1}{8}$ inches, inside, and the dimensions of a popular one-half cranberry-barrel box are $10\frac{1}{32}$ by 14 by 20 inches, inside, giving them capacities of 730.4 and 2,913.75 cubic inches, respectively.

Some confusion may exist regarding the quantity of cranberries packed in a box because of differences in methods of packing. Growers who pack the box full and then force the bottom in place put approximately 50 pounds of cranberries in a $\frac{1}{2}$ -barrel box. When pressure packing is not employed the box may not contain so great a weight of cranberries.

GREEN CORN

Green corn from Florida and other Southeastern States is shipped in bushel crates 12 by 12 by 15 inches, inside, in a special corn crate 12 by 12 by 22 inches, in various types of $1\frac{1}{2}$ -bushel crates, one of which is 12 by 12 by $22\frac{1}{2}$ inches, inside, in the half-barrel cabbage crate, in the celery crate, and in the wire-bound citrus-fruit crates. The pack varies from 4 to 12 dozen ears.

The standard cantaloup crate and the Florida corn crate, both 12 by 12 by 22 inches, inside, are used in North Carolina and some other parts of the South. The bushel basket and box and some open-mesh bags are used in Texas and Louisiana. Alabama ships mostly in $1\frac{1}{3}$ -bushel crates or bags (fig. 37).



BAE 33788

FIGURE 37.—Car partly loaded with Texas green corn in 1-bushel open-mesh bags.

A crate used to some extent in the Southwest is 12 by 12 by $20\frac{3}{4}$ inches, inside. On the Pacific coast a 12-dozen two-compartment crate measuring 11 by 13 by 29 inches, inside, is used.

CUCUMBERS

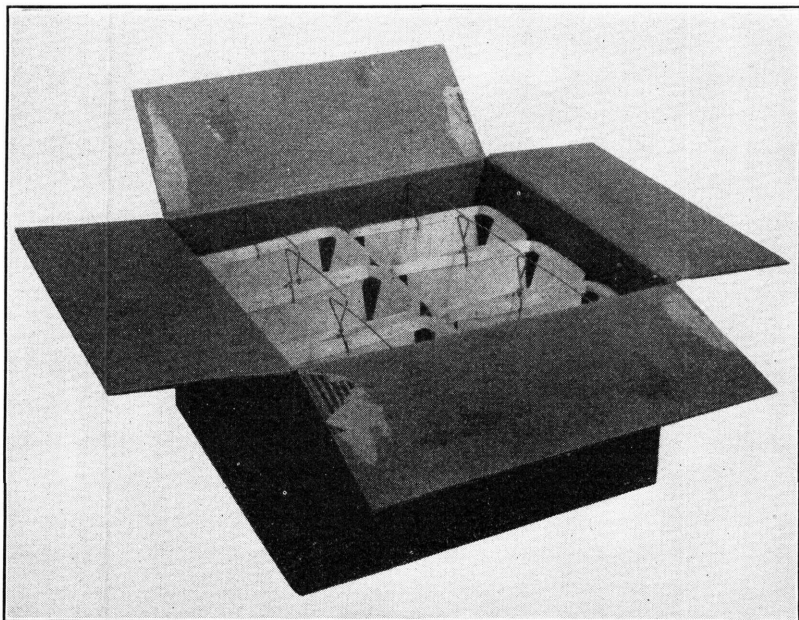
Florida is by far the largest shipper of cucumbers. They are packed in bushel hampers and tub baskets and in the 12 by 12 by 15-inch bushel crate. A crate measuring 9 by 13 by 22 inches, inside, and the $1\frac{1}{2}$ -bushel crate, measuring 12 by 12 by $22\frac{1}{2}$ inches, inside, are also used. The bushel tub basket is popular in the Carolinas, Louisiana, and Texas. From Virginia north, bushel hampers and baskets are used to a great extent; 12-quart climax baskets and splint baskets are used in Illinois, Indiana, and Ohio and lug boxes in California.

FIGS

Fresh figs from California are shipped in shallow boxes in which fillers are placed to provide a cell for each fig. The number of cells used depends on the size of the figs to be packed. These boxes vary in depth from $1\frac{3}{4}$ to 2 inches, and are 11 inches wide by $16\frac{1}{2}$ inches long. They hold approximately 5 pounds of figs. Shallow baskets having the same top dimensions as the 3-quart basket and packed four to the crate are sometimes used.

GRAPES

The types of containers used for shipping the American type of grapes, grown principally in the eastern part of the country,⁷ differ



BAE 18369

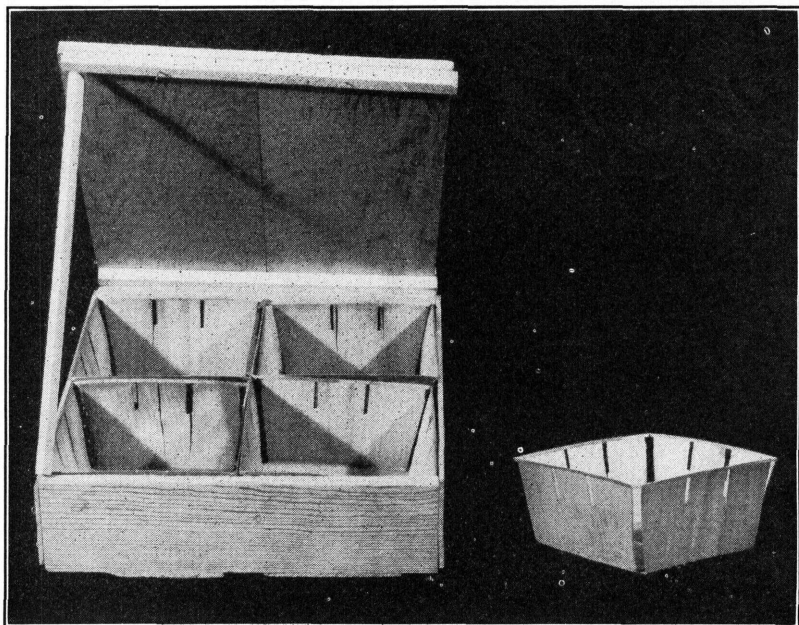
FIGURE 38.—Twelve-basket carton for eastern grapes. Baskets are 2-quart oblong tills with wire overhandles.

from those used for the European type, grown mainly in California. For the American type of grape the principal container is the Climax basket, of which there are three sizes—the 2-, 4-, and 12-quart (see fig. 3). In recent years for fancy table grapes the 2-quart till basket, packed 8 or 12 to a carrier crate or carton, has become popular (fig. 38).

The greater part of the vinifera (European) grape shipments from California is shipped in boxes, commonly referred to as lug boxes. Some grapes are shipped in 3-quart baskets enclosed in crates, and some in kegs and drums, the latter being used for grapes packed in sawdust, cork, or similar material. However, special lug boxes are being used increasingly for this type of pack.

⁷The preparation of eastern grapes for market is discussed in Farmers' Bulletin 1558, Preparation of Eastern Grapes for Market.

Most shipments of vinifera grapes originate in California, and for many years there has been an attempt in California to bring about the standardization of grape containers, but the demands of shippers' organizations for variations in sizes have always more or less nullified the effort. The California Standardization Act as amended in 1937 provides for a number of permissive standard containers which if used may be marked "standard." These include the United States standard 4-quart Climax basket and the 3-quart till basket. For the sawdust packs there is a standard grape drum and a standard grape keg, each containing 2,642 cubic inches, and two lugs $7\frac{3}{4}$ and 11 inches, depth, by $13\frac{1}{2}$ inches, width, by $16\frac{1}{8}$ inches, length, inside. The practice of packing in sawdust is diminishing, and few drums are used.



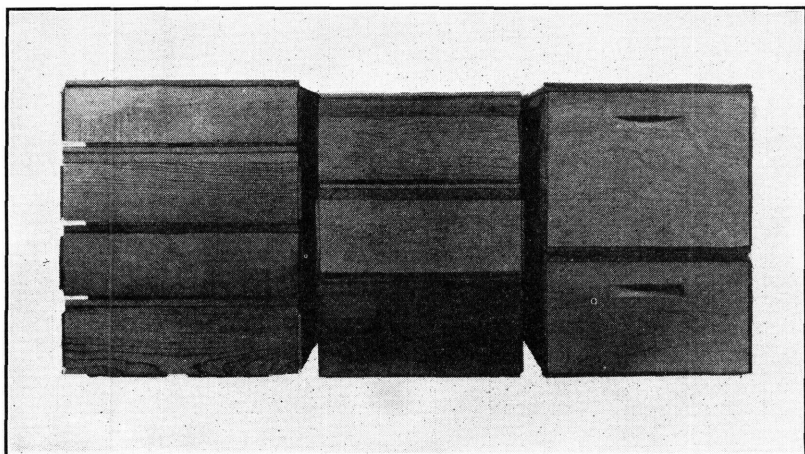
BAE 20528A

FIGURE 39.—Standard California four-basket crate. Baskets are of 3-quart capacity.

Approximately 20 percent of the sawdust pack is put up in kegs, approximately 32 pounds of grapes to the keg. Only the smaller of the two standard lugs is used. It holds 22 pounds net of grapes. Most sawdust-pack grapes are packed in a nonstandard lug measuring $7\frac{3}{4}$ by $14\frac{1}{8}$ by $18\frac{1}{8}$ inches inside and holding 32 to 34 pounds net of grapes. When four-basket crates are used the depth may be 4, $4\frac{1}{4}$, $4\frac{1}{2}$, or $4\frac{3}{4}$ inches by 16 inches by $16\frac{1}{8}$ inches inside (fig. 39).

Two sizes of grape lugs (fig. 40) are provided, $5\frac{1}{16}$ and $5\frac{1}{4}$ inches deep, the width and length being the same as the sawdust-pack lugs— $13\frac{1}{2}$ by $16\frac{1}{8}$ inches. The State law requires an $\frac{1}{16}$ -inch cleat to be used with the $5\frac{1}{16}$ -inch head. The second head may be used with or without an $\frac{1}{16}$ -inch cleat. The actual depth therefore is $5\frac{3}{4}$ inches in

the first and either $5\frac{3}{4}$ or $6\frac{7}{16}$ inches in the second. The so-called display lug is restricted in depth to $5\frac{3}{4}$ inches. The heads of this lug are usually made of two pieces, one $4\frac{1}{2}$ and the other $1\frac{1}{4}$ inches wide. In one respect the various lugs and crates are uniformly standard; that is, the outside length is $17\frac{1}{2}$ inches.



BAE 27200

FIGURE 40.—Standard California grape crates and lugs. Left: Crates for four 3-quart baskets may be 4 , $4\frac{1}{4}$, $4\frac{1}{2}$, or $4\frac{3}{4}$ inches deep. Center, reading from top: Display lug, $5\frac{3}{16}$ and $5\frac{3}{4}$ -inch lugs (the $5\frac{3}{4}$ -inch or Los Angeles lug is a leading package for tomatoes). Right: Sawdust-pack lugs.

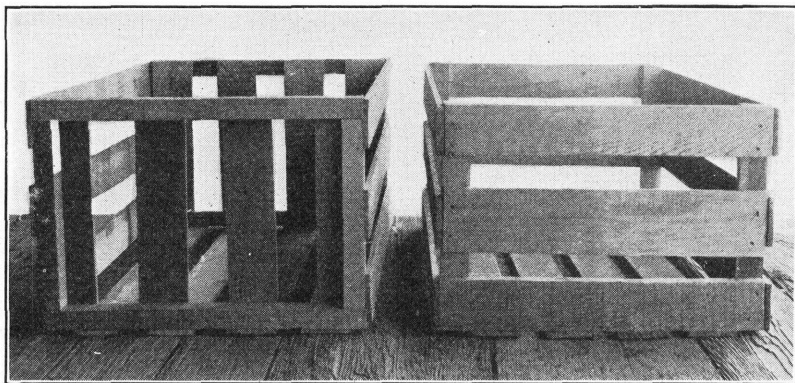
It will be seen that California provides for 11 different permissive standard containers for grapes; and this situation may be further complicated by the fact that others may be used if they are not marked "standard." One such nonstandard lug that is extensively used is the so-called No. 2 lug, $4\frac{3}{4}$ inches deep, which may be used with or without a cleat. Another is a tapered-end box that comes in several slightly varying specifications. When the cleat is used, it is obvious that the boxes can be packed level with the cleat, and that when they have reached the receiving market the cleat can be removed and the box appear full even though considerable settling may have occurred.

LETTUCE

Lettuce is marketed in a great many different styles and sizes of crates, boxes, and baskets, but most of the carload shipments originate in Arizona, California, Colorado, Idaho, New York, and Washington, where only crates are used. Obviously the crate is the most important of the packages.

The so-called Los Angeles, or western lettuce, crate is perhaps best known and most widely used. As originally standardized by California law it was 13 inches deep, 18 inches wide inside, with an outside length of $24\frac{1}{2}$ inches and a minimum inside length of $21\frac{1}{8}$ inches. This unusual provision was to allow two types of construction (fig. 41), the Los Angeles type being made with the end slats on the inside of

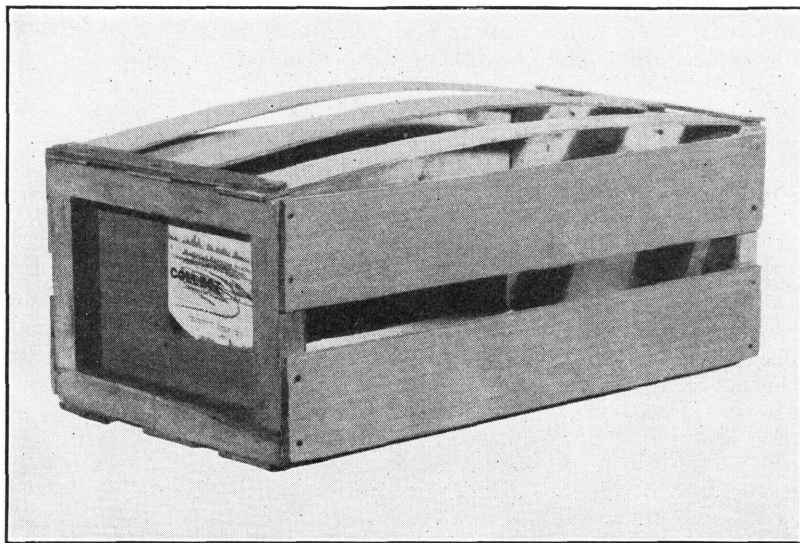
the end posts and the Brawley type with the slats on the outside. Two crates are now provided, one 13 and the other $13\frac{3}{4}$ inches deep, the width and length inside being $17\frac{1}{2}$ and $21\frac{1}{8}$ inches, respectively. These crates are used for packing from 36 to 90 heads of lettuce. The law requires that each crate shall be conspicuously stamped with the exact number of heads contained.



BAE 10757

FIGURE 41.—Western-type lettuce crate showing two styles of construction.

What was known as the Salt Lake crate was formerly used in California to some extent. It went out of use for a number of years but has recently been reintroduced. This crate, often referred to as the half crate, is practically one-half the size of the larger crate. As standardized by California law, this crate measures 9 to $9\frac{1}{2}$ by 13 by $21\frac{1}{8}$ inches inside (fig. 42).

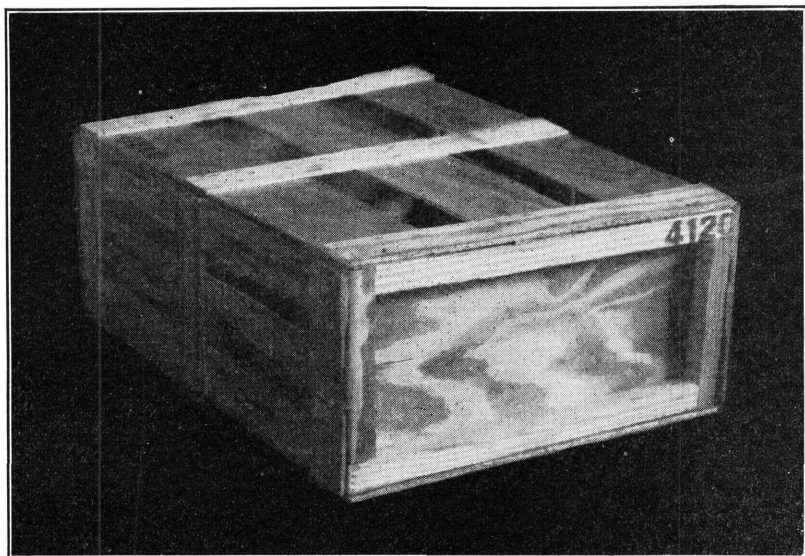


BAE 23855

FIGURE 42.—Half lettuce crate, western type.

The California-type crates are also used in Arizona, Colorado, Idaho, Oregon, and Washington, although minor variations are sometimes found in them. Arizona prescribes a crate 13 by 17 by 21½ inches. In Idaho a similar crate is used, with the length 22½ inches. In Washington, in some instances, crates with heads measuring 14 by 17 inches instead of 13 by 18 inches are used. The latter is prescribed in Oregon.

In New York three sizes of crates were formerly used, each designed to hold 24 heads of lettuce, but after considerable discussion the growers decided to discard all of them and adopt a new crate measuring 7½ by 16 by 19 inches inside (fig. 43). This crate has been made by law the standard crate of New York, and it is now generally used in the Atlantic Coast States and Florida.



BAE 13031

FIGURE 43.—Standard New York lettuce crate.

Although the bulk of the head lettuce is marketed in crates, much of the Florida crop moves in the 48-quart hamper, and in North Carolina the 40-quart hamper is used.

Leaf lettuce is marketed in a variety of containers, some gardeners using lug boxes and second-hand vegetable, sugar, and flour barrels. The growers of hothouse lettuce in northern Ohio use a square-cornered splint basket, holding 10 pounds of leaf lettuce. Smaller splint baskets, holding 3 pounds, are used by some growers. Some leaf lettuce is marketed in ¾-bushel and 1-bushel round stave baskets holding approximately 10 and 15 pounds, respectively.

MUSHROOMS

In the Kennett Square district of Pennsylvania a principal shipping container for mushrooms is the 4-quart Climax basket, holding approximately 3 pounds. A 4-quart square-cornered splint basket is sometimes used by growers around Cleveland, Ohio. Mushroom growers have sought a satisfactory wooden container, holding only 1 pound or less, the idea being to put this commodity on the market in a package that could be sold intact to the consumer. Paper cartons holding $\frac{1}{2}$, 1, and 2 pounds are used, and in 1934 the Standard Container Act of 1916 was amended to provide a standard 1-pound Climax basket exclusively for mushrooms (fig. 2).

OKRA

As only a limited quantity of okra is raised, most of the shipments are made by express, and whatever package is most convenient at the time is used. The greater number of these shipments originate in the southeastern part of the country, where the common packages are the bushel hamper or basket and the 1-bushel crate.

ONIONS

The 1-bushel folding onion crate, long established by law in Texas and recognized throughout the United States as the standard onion crate, is no longer extensively used. The 50-pound sack has become the most popular container for onions and is used in practically every onion-growing section of the country (fig. 44). Some 25-pound sacks and some 10- and 5-pound sacks are also used.

Many Egyptian and Spanish onions are shipped to the United States. The former are packed in jute bags that hold about 112 pounds. Spanish onions are packed in cases, half cases, and crates, containing 125 to 130, 65, and 37 to 40 pounds, respectively. A common type of crate for Spanish onions measures $6\frac{3}{8}$ by 18 by 18 inches outside and holds 50 onions—20 in one compartment and 30 in the other. Another crate measures $10\frac{1}{2}$ by $14\frac{3}{4}$ by 39 inches outside and holds 150 onions.

PEACHES⁸

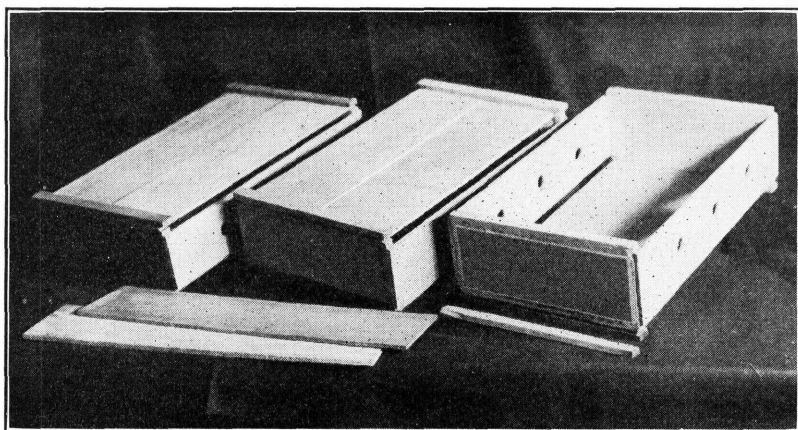
Boxes are commonly used for shipping western peaches. The western peach box has the same width and length as the pear and apple boxes ($11\frac{1}{2}$ by 18 inches inside), but there is considerable variation in depth. State standards include depths varying from $3\frac{1}{2}$ to 6 inches in half- and quarter-inch intervals (fig. 45). The $4\frac{1}{2}$ -inch depth is perhaps the most popular, but the 4-, $4\frac{1}{4}$ -, and $4\frac{3}{4}$ -inch depths are also largely used for the standard packs, in which 32 to 96 carefully sized peaches are arranged in diagonal or offset rows, two layers deep. The 5-inch and deeper boxes, usually packed three layers deep, and the shallower boxes, sometimes packed with one layer, are rarely used.

⁸ The preparation of peaches for market is discussed in Farmers' Bulletin 1702, Preparing Peaches for Market.



FIGURE 44.—A 50-pound sack of onions.

BAE 33981



BAE 4465

FIGURE 45.—Three sizes of western peach or fruit boxes: 4-, 4½-, and 5-inch depths—the last-named has a cleat.

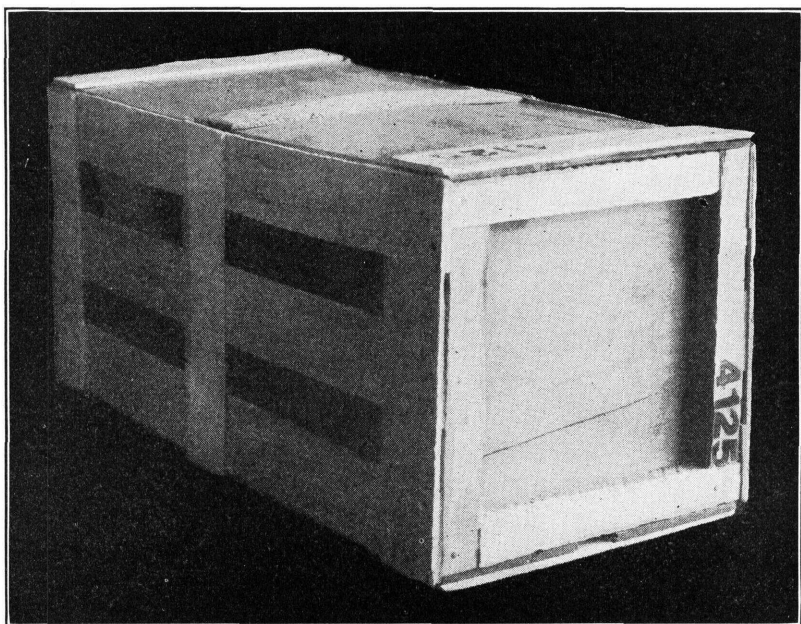
To have numerous peach boxes varying by fractions of an inch in depth, may seem unnecessary and confusing. However, many of these boxes are State standard containers for other products—such as pears, plums, and prunes, persimmons, tomatoes—as well as for peaches (table 7). The California law designates them as “fruit boxes” rather than peach boxes. Under such conditions if the standard width and length are maintained, the use of a number of different depths may be justified so long as the products are graded to standard sizes and packed by count.

Some California peaches are packed in four-basket crates of varying depths and some in lug boxes $5\frac{1}{16}$ and $5\frac{3}{4}$ by $13\frac{1}{2}$ by $16\frac{1}{8}$ inches inside.

In the country east of the Rocky Mountains the containers chiefly used for shipping peaches are the $\frac{1}{2}$ - and 1-bushel straight-side or tub basket, the six-basket crate, and various small sizes of hampers, locally called peach baskets.

The six-basket crate was formerly the most generally used but has given way, to a great extent, to the tub basket. It contains six 4-quart till baskets (fig. 46), placed in two tiers, with a dividing tray between to prevent the fruit in the lower tier from being bruised by the pressure of the upper baskets. The commonly accepted inside dimensions of this crate are 10 by 11 by 22 inches, but a 10½-inch depth is used in Maryland. It is frequent practice to use a half-inch cleat under the cover of the 10-inch crate, to take care of the high bulge with which it is commonly packed. Packing schemes have been developed for the six-basket crate so that it may be packed with a definite number of peaches, depending on their size.

The 1-bushel round-stave basket came into use in Georgia as a container for peaches partly as a result of the high price of packing-house labor. The baskets are jumble packed and ring faced. When the straight-side or tub basket with a removable bottom came on the market it was soon tried in Georgia because it could be packed through the bottom, thus making the ring face the first operation. Later



BAE 12944

FIGURE 46.—Six-basket crate containing six 4-quart oblong till baskets.

development of the various ring-packing devices has enabled shippers to accomplish the same result without the use of removable bottoms. Consequently, although the loose-bottom basket is still used, all types of tub baskets are now used in the Southeast (fig. 17). The $\frac{1}{2}$ -bushel size is used mainly for the smaller sizes and in early shipments.

The tub baskets are also used in Maryland, Delaware, and New Jersey, but this section continues to use many hampers. In New Jersey the 20-quart hamper is popular. It is used without a cover for trucking into Philadelphia, and other nearby markets. The 16-quart hamper is generally used in the Northeastern States. In New York tub baskets are used for shipping, and the 8-quart hamper or "high hat" is used locally. In Michigan and Illinois the straight-side baskets and some bushel boxes are used, and some fancy fruit is packed in the four-basket flat, which holds four 3-quart square till baskets. The western box has not come into any great use in the East, although it has been used to some extent in southeastern sections, particularly in North Carolina.

PEARS

The box for pears has the same inside width and length as the peach and apple boxes, but it is $8\frac{1}{2}$ inches deep. These dimensions are generally accepted in all producing sections, although the States of New Mexico and Washington designate the 8-inch box as standard. The half box, $4\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches (the same size as the $4\frac{1}{2}$ -inch peach box), is standard in Oregon. A special $5\frac{1}{2}$ -inch box for pears,

provided in the California law, is used for export shipments. The same box and one that is $9\frac{1}{2}$ inches deep are standard in Oregon for three-cushion packs of pears.

The $4\frac{1}{4}$ -, $4\frac{1}{2}$ -, and $4\frac{3}{4}$ -inch fruit boxes are standard for pears in California, as are the grape lug and a special lug $6\frac{1}{2}$ by $13\frac{1}{2}$ by $20\frac{5}{8}$ inches inside.

In New York, which ships more pears than any other Eastern State, the $\frac{1}{2}$ - and 1-bushel tub baskets and the barrel are used. Illinois and Michigan use both round-bottom and tub bushel baskets.

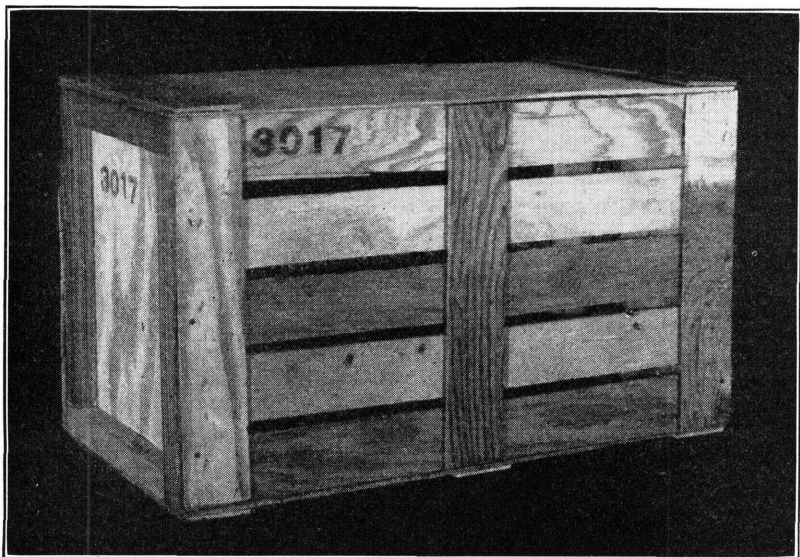
PEAS

In the eastern sections peas are shipped in bushel hampers and in bushel baskets. In the West drums were formerly used to a great extent, followed by the crate, which more recently is being replaced by the 1-bushel hamper (fig. 6). A crate $9\frac{1}{2}$ by 12 by $19\frac{5}{8}$ inches inside is standard in Oregon and is used to some extent. The lettuce crate is used locally in California and in Colorado. Some shipments of peas have been made in open-mesh sacks.

PEPPERS

Only one kind of container developed primarily for the shipment of peppers is used in the United States. This is the Florida pepper crate, used in that State for the shipment of peppers and eggplant (fig. 47). As it is also used for the shipment of beets, carrots, turnips, and squash, it may be considered a general-utility crate.

This crate was developed from the 32-quart berry crate, and originally had the same dimensions. As first made, it had a capacity of $1\frac{1}{3}$ bushels. Both the berry crate and the pepper crate were changed



BAE 11049

FIGURE 47.—Florida pepper crate, a desirable general-utility crate of $1\frac{1}{3}$ bushels capacity.

somewhat in measurement, and the pepper crate became 14 by 11 by 22 inches inside, and its capacity a little more than $1\frac{1}{6}$ bushels. Because of its use as a general-utility crate, it was again changed to hold $1\frac{1}{2}$ bushels by making it $13\frac{3}{8}$ by 11 by 22 inches. This crate as used in Texas is 11 by 14 by $22\frac{1}{4}$ inches inside.

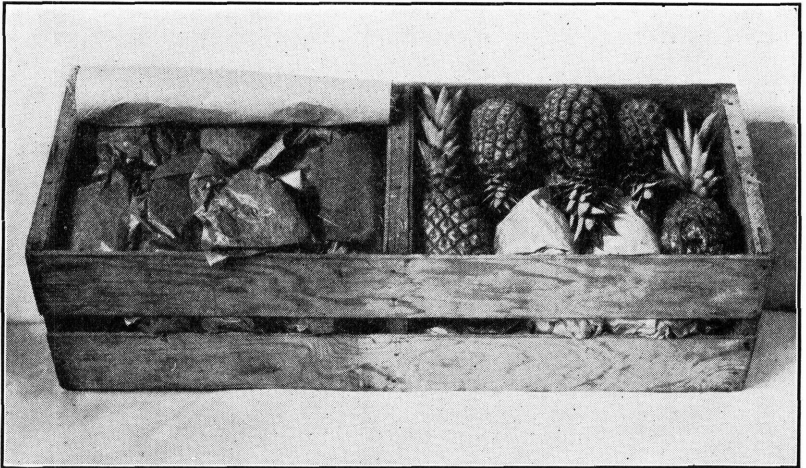
In New Jersey, North Carolina, and Virginia, 1- and $1\frac{1}{2}$ -bushel hampers are used for peppers. The western lettuce crate and tomato lug are used in California. In Mexico the lettuce crate with two extra slats is used, and in Cuba the Florida crate.

PERSIMMONS

Large persimmons are packed in single layers and the smaller sizes in double layers, much as in the standard peach packs. The boxes standardized by California for persimmons are the fruit boxes ranging from 3 to $4\frac{1}{4}$ inches deep by $11\frac{1}{2}$ by 18 inches inside; the Los Angeles lug $5\frac{1}{4}$ by $13\frac{1}{2}$ by $16\frac{1}{8}$ inches inside; and the four-basket crate of various depths.

PINEAPPLES

The chief container for pineapples is the standard southeastern crate, measuring $10\frac{1}{2}$ by 12 by 33 inches inside (fig. 48). This is used for shipments from Florida, Cuba, and the Isle of Pines. It is commonly made with panel ends, but some manufacturers use solid heads although they adhere to the inside dimensions given.



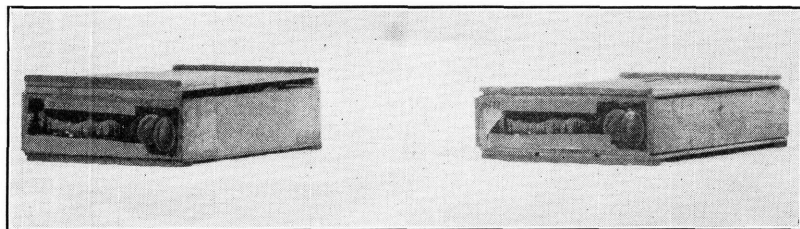
BAE 3798

FIGURE 48.—Southeastern standard pineapple crate.

PLUMS, PRUNES, AND APRICOTS

The Italian prunes grown in Idaho are shipped largely in $\frac{1}{2}$ -bushel tub baskets, and this package is used to some extent for prunes grown in certain sections of Oregon and Washington. The old "suitcase" lug, approximately $3\frac{1}{4}$ by $11\frac{1}{2}$ by 18 inches inside, formerly the favorite package for western prunes, and the four-basket crate have been almost displaced by the basket and a display lug. As standardized by Oregon, the dimensions of this lug are $3\frac{3}{8}$ by $10\frac{1}{2}$ by 15

inches inside. A $\frac{1}{2}$ -inch cleat makes the total depth $3\frac{3}{8}$ inches. It is usually packed 16 pounds net weight with one or two faced layers backed by a jumble pack (fig. 49).



BAE 25122

FIGURE 49.—Northwestern prune boxes. Left, display lug; right, "suitcase" lug.

In California, plums are generally packed in the standard four-basket crate from 4 to 5 inches deep, in two or three layers, depending on the size of the fruit. The count ranges from 112 to 340 per crate. This crate holds four 3-quart till baskets and is 16 inches wide and $16\frac{1}{8}$ inches long. Peach boxes ($11\frac{1}{2}$ by 18 inches) are also popular, the depth ranging from $3\frac{1}{2}$ to 5 inches and the standard packs varying from 78 to 105 plums per box.

The four-basket crate (see fig. 39) is a popular package for apricots in California. Peach boxes are rarely used, but several special lugs have been developed for faced packs. One is $4\frac{1}{4}$ by $12\frac{1}{2}$ by $16\frac{1}{8}$ inches inside; another has the same depth and length but is 1 inch wider; and a third is $3\frac{5}{8}$ by 11 by $14\frac{5}{8}$ inches inside, closely akin to the display lug used for prunes and plums.

Eastern plums are shipped in various packages, but $\frac{1}{2}$ - and 1-bushel flat-bottom baskets and 4- and 12-quart Climax baskets are probably the most popular. Small plums are occasionally shipped in berry crates.

POMEGRANATES

Two special lugs are used for the shipment of pomegranates from California. One is $5\frac{3}{4}$ inches deep, and the other $6\frac{1}{2}$ inches deep, the width and length being $11\frac{1}{2}$ by $24\frac{5}{8}$ inches in both.

POTATOES

Potatoes are shipped in barrels, sacks, and crates, and in bulk. A few baskets and hampers are also used. Only a few years ago along the southeastern Atlantic seaboard from the Eastern Shore of Maryland, south, barrels of one type or another were used almost to the exclusion of other containers. At present, the barrel is important in Florida, where the double-head type is used (see fig. 1); barrels with cloth or burlap tops are used to some extent in the States farther north.

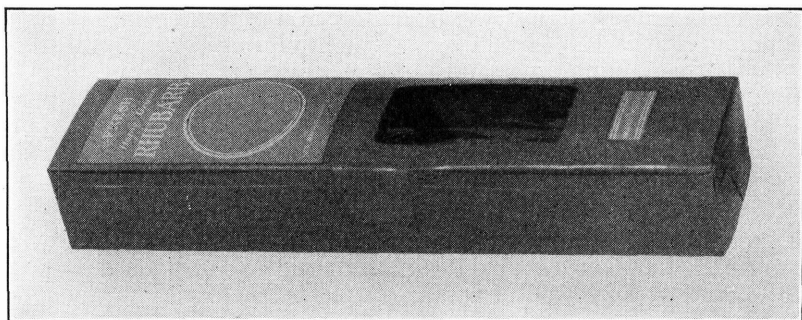
The bushel crate (see fig. 12) measuring 12 by 12 by 15 inches inside, and the 100-pound sack are used in Florida and Texas for early potatoes. In the rest of the country, for both early and late potatoes, the 100-pound sack has become the chief package.

A fairly large volume of potatoes is handled in consumer-size bags of 10-, 15-, and 25-pound capacity. In Maine, Long Island, northern New York, Idaho, Washington, Oregon, and California consumer-size bags are packed in volume. The 10- and 15-pound sizes are most popular in the East, and the 25-pound size is more popular on the West coast. Several different kinds of small bags are used, including those made of cotton sheeting, open mesh, and multiple-wall paper. In some of these States 10- and 15-pound cartons have been used. Baking potatoes are sometimes graded as to size and packed and sold by count in printed cartons.

RHUBARB

It is probable that for rhubarb most growers use whatever packages happen to be convenient, but a few special containers have been reported. For field-grown stock at Walla Walla and Sumner, Wash., a 6-inch peach box $11\frac{1}{2}$ inches wide and 18 inches long is used for packing 20 pounds of rhubarb; the cellar or hothouse rhubarb is usually packed 15 pounds to a box of the same width and length but only 4 inches deep.

The half artichoke box ($4\frac{7}{8}$ by 11 by $20\frac{3}{8}$ inches inside, holding 20 pounds of rhubarb) is used in San Francisco and Alameda Counties, Calif. The northwest apple box, $10\frac{1}{2}$ by $11\frac{1}{2}$ by 18 inches inside, holding 22 pounds, is used around Los Angeles. A box measuring $7\frac{1}{4}$ by $11\frac{1}{2}$ by $21\frac{1}{8}$ inches has been reported in use in Colorado.



BAE 27095

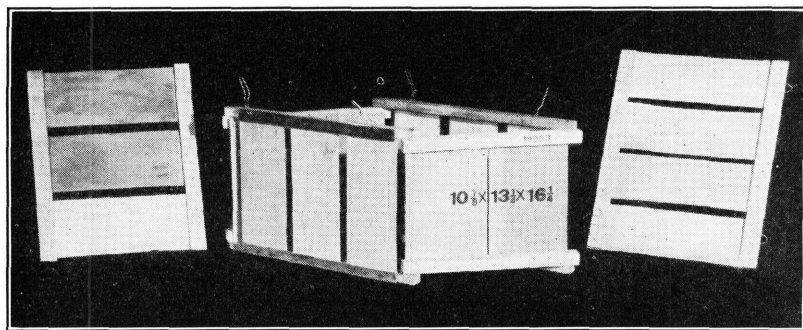
FIGURE 50.—A 2-pound rhubarb carton.

During recent years small folding cartons have come into use in certain eastern sections. One of these measures $2\frac{3}{4}$ by 4 by $17\frac{7}{8}$ inches inside and holds approximately 2 pounds of rhubarb (fig. 50).

SWEETPOTATOES

Sweetpotatoes are shipped to distant markets in hampers, baskets, crates, and barrels. Shipments in sacks and in bulk are confined to local markets. Barrels are used in the Norfolk section for early shipments direct from the field. In the sections of greatest production—in New Jersey, Maryland, Delaware, and Virginia—the two most popular packages for cured stock are the 1-bushel hamper and 1-bushel tub basket. The basket and some crates are used in the Carolinas.

Louisiana has developed a special 50-pound pack of sweetpotatoes using a nailed or wire-bound crate of approximately $1\frac{1}{4}$ bushels. Shipments from Alabama are almost entirely in bushel baskets. In Texas both the tub bushel and crates of similar or slightly larger size are used. In Tennessee the 1-bushel hamper and several styles of crates are used. One of these, a folding type, measures 12 by $13\frac{1}{2}$ by $16\frac{1}{4}$ inches inside and contains about 38 quarts (fig. 51).



BAE 33592

FIGURE 51.—Folding crate for sweetpotatoes, holding approximately $1\frac{1}{4}$ bushels, used in Tennessee.

California has established two boxes as standard for sweetpotatoes, the one-half box— $7\frac{3}{4}$ by $11\frac{1}{2}$ by $22\frac{3}{4}$ —and the three-fourths box— $9\frac{3}{4}$ by 14 by $22\frac{3}{4}$ inches inside, respectively. The Los Angeles lug, $5\frac{3}{4}$ by $13\frac{1}{2}$ by $16\frac{1}{4}$ inches inside, is also used in California.

TOMATOES⁹

Florida leads all other States in carload shipments of tomatoes, followed in order by Texas, California, Mississippi, and Tennessee. In 1935, 22,231 of the 25,240 carloads were shipped by these five States.

At one time practically all tomatoes from Florida were shipped in the six-basket crate, and in a similar way the tapered-end four-basket crate was the chief package in Texas and Mississippi. The former held six 4-quart oblong till baskets, and the latter four 3-quart square baskets. Neither is now used to any considerable extent. The so-called Los Angeles lug is now the predominant package in all important tomato shipping sections (fig. 40). As standardized by California, Oregon, and Texas, this lug measures $5\frac{3}{4}$ by $13\frac{1}{2}$ by $16\frac{1}{4}$ inches inside. An $\frac{1}{16}$ -inch cleat is commonly used on this lug, making the depth $6\frac{7}{16}$ inches, and some types are made with ends of this depth. The usual pack is 30 pounds of tomatoes to the lug.

In Texas, Mississippi, and Tennessee as well as in some other sections a pony or junior lug of the same width and length but only 4 inches deep, holding approximately 20 pounds of tomatoes, is used. Another lug of similar capacity but different dimensions— $4\frac{3}{4}$ by $11\frac{1}{2}$ by $18\frac{5}{8}$ inches inside, known as the Sterling lug—is most popular in Union County, Ill.

⁹ The preparation of fresh tomatoes for market is discussed in Farmers' Bulletin 1291, Preparation of Fresh Tomatoes for Market.

For early shipments from the Imperial and Coachella Valleys of California some use is still made of the standard California four-basket crate. Peach or fruit boxes $11\frac{1}{2}$ by 18 inches and from $3\frac{1}{2}$ to 6 inches in depth are prescribed as standard for tomatoes in Oregon, and the 4 and $4\frac{1}{2}$ inch boxes in Washington.

The New Jersey 20-quart crate (fig. 52) is used extensively in the Swedesboro and southern New Jersey sections: There are some varia-

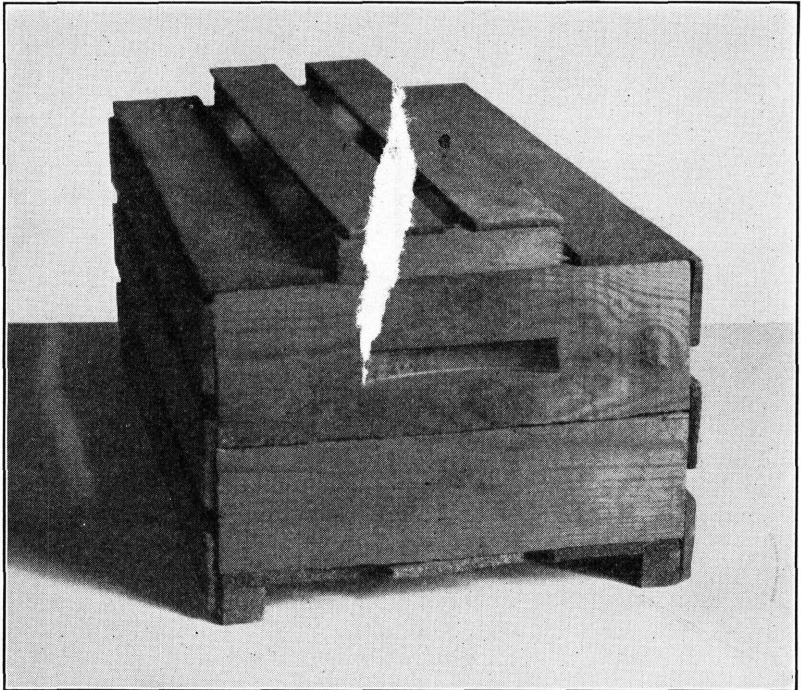


FIGURE 52.—New Jersey 20-quart tomato crate.

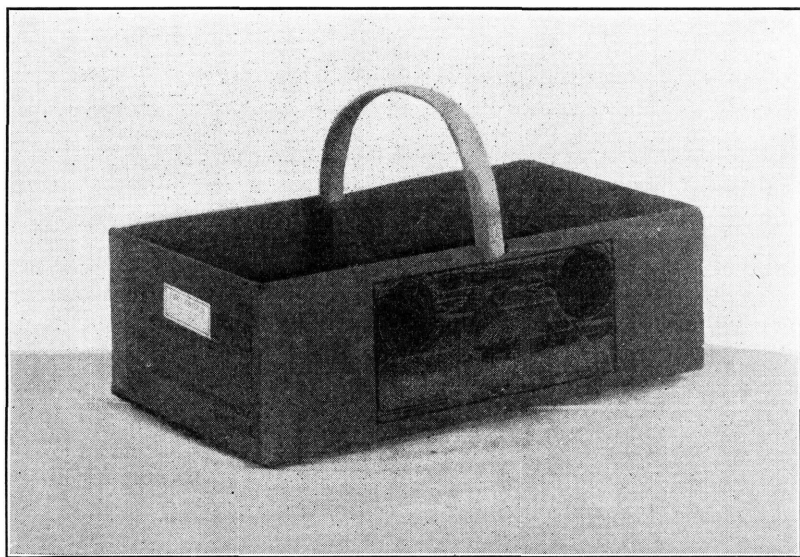
BAE 9579

tions in the dimensions of this crate, but representative measurements are $6\frac{3}{4}$ by 11 by $18\frac{3}{8}$ inches inside. The raised central part of the top is a peculiar feature, which would prevent stacking were it not for the bottom rails. This container is sometimes referred to as a 30-pound crate, as it holds approximately that weight of tomatoes. Some dissatisfaction with this crate has been expressed by shippers in New Jersey, and experiments have been made with other crates.

The 12-quart Climax basket (fig. 2) is favored in shipping sections of Ohio, Indiana, and Kansas and is used to some extent in Missouri, Illinois, and New Jersey. With the raised type of cover this basket holds about 20 pounds, and with the flat cover about 17 pounds of tomatoes. The 4-quart and 12-quart Climax baskets have been used somewhat in western New York and in Michigan.

Among other containers that are used for tomatoes are the 20-quart brace hamper and the 8-quart market basket. The former is used in Maryland and New Jersey for trucking tomatoes to canneries and in New Jersey for trucking to the Philadelphia market. The 8-quart square-braid market basket is a common package for hothouse tomatoes in the northern Ohio section and is used for motortruck, boat, and rail shipments.

The most recent package to become popular for tomatoes in this and other hothouse sections, is an 8-quart overhandle paperboard basket of approximately the same dimensions as the 8-quart square braid splint basket (fig. 53).



BAE 24011

FIGURE 53.—An 8-quart overhandle paperboard basket extensively used for hothouse tomatoes and for repacked southern-grown tomatoes.

MISCELLANEOUS FOLIAGE VEGETABLES

For spinach, the 1-bushel basket is the principal package used in practically all commercially important shipping States, among them Texas, Virginia, Arkansas, Louisiana, and Oklahoma.

Besides this package, Louisiana uses a few western lettuce crates and 4-bushel barrels for bunched spinach. From Colorado and California spinach is shipped in western crates.

The packages used for spinach are used also for parsley. The large barrel holds about 20 dozen bunches and two or three layers of ice.

Endive and escarole are shipped from Florida in 1½-bushel hampers, but otherwise, except in California, the 1-bushel basket is used. In California the western crate is used. The basket is also the chief package for kale and collards.

MISCELLANEOUS ROOT VEGETABLES¹⁰

The western crate (13 by 18 by 21½ inches inside) has become the leading package for bunched carrots in California, Arizona, Texas, Oregon, and Louisiana. The half crate (9 by 13 by 21½ inches inside) and the 1-bushel basket are also used in Texas and Louisiana, and in the latter State a few 4-bushel barrels are used. In Colorado a half crate is usual.

For bunched beets the western crate and half crate are used in Texas and Louisiana, but the bushel basket is used to some extent in both sections. In Florida shippers use the celery crate, in Virginia a barrel, and in North Carolina a 5-peck hamper. The same containers are used for bunched turnips.

For radishes shippers in Alabama, Mississippi, and Louisiana use a bushel basket and the 4-bushel barrel. In Arkansas, Texas, and Colorado the one-half lettuce crate and a smaller crate measuring 8 by 12 by 22 inches inside are used. In South Carolina and Virginia a bushel crate or the bushel hamper and sometimes the New York lettuce crate measuring 7½ by 16 by 19 inches are found.

Shallots are shipped from Louisiana in the western crate and half crate, the 4-bushel barrel, and a 1½-bushel crate. In Texas the western crate is used, and in Virginia the bushel hamper.

Topped beets and carrots are usually marketed in 50- or 100-pound bags but 1-bushel baskets are commonly used in New York and Illinois.

BENEFITS ACCRUING FROM FEDERAL STANDARDIZATION

Great variation is found in fruit and vegetable containers. Some of this is practically unavoidable because different commodities require different types of packaging and packages and because manufacturers in different sections of the country can readily supply certain kinds of containers and cannot readily supply other kinds. For various reasons it is not likely that in a country as large as the United States one specific type of container will be adopted for any given product.

But some reduction in the number of kinds of containers now in use is possible. The vast interchange of fruits and vegetables is acquainting the various shipping sections with the containers used in other sections, and out of this is likely to come a more general adoption of those containers that appear to be best suited to the successful marketing of given products. The almost universal use of the lug box for tomatoes and a similar widespread use of the western-type lettuce crates for cabbage and other vegetables indicate the possibilities. Among the contrary forces are inertia, local pride and prejudice, sectional differences in materials and in methods of manufacturing, lack of authentic information, and lack of centralized and authoritative leadership.

Certain highly specialized products may require special containers, but for the great mass of perishables moving in all directions across the country by motortruck and rail, economical handling, fair com-

¹⁰ The preparation of bunched beets, carrots, and turnips for market is discussed in Farmers' Bulletin 1594, Preparation of Bunched Beets, Carrots, and Turnips for Market.

petition, proper accounting, and informative reporting are contingent upon the use of established units of fixed and uniform value. The coming into use throughout the country of a given type of container intensifies rather than diminishes the need for fixed standards, if sharp practices and deceptive sizes and shapes of containers are to be avoided.

The benefits accruing from the Federal standardization of hampers, baskets, and barrels are generally recognized, and it is believed that the principle of standardization—simplification—could be applied to those containers not now regulated on a national basis with results equally advantageous to all concerned. In this field it is fundamental that the problem of standardization be seen as a twofold question. (1) There must be standards that are based on the bushel with its multiples and subdivisions for use in shipping produce which is sold extensively by the bushel or by measure and for which standardized baskets and barrels are now used, and (2) there must be standards that are not based on volume but rather on their particular desirability for use in packing certain products by weight or numerical count.

When measurement by volume is the primary consideration, the standards established by the Federal Barrel Act and the two Standard Container Acts would seem to be adequate for competitive types of containers. As to the containers for commodities packed by weight or count, the work of standardization and simplification should be carried on by some centralized authority in collaboration with the industries affected, with a view to minimizing the number of shapes and sizes of containers, obtaining uniformity in the dimensions thereof, and properly identifying and designating them.

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